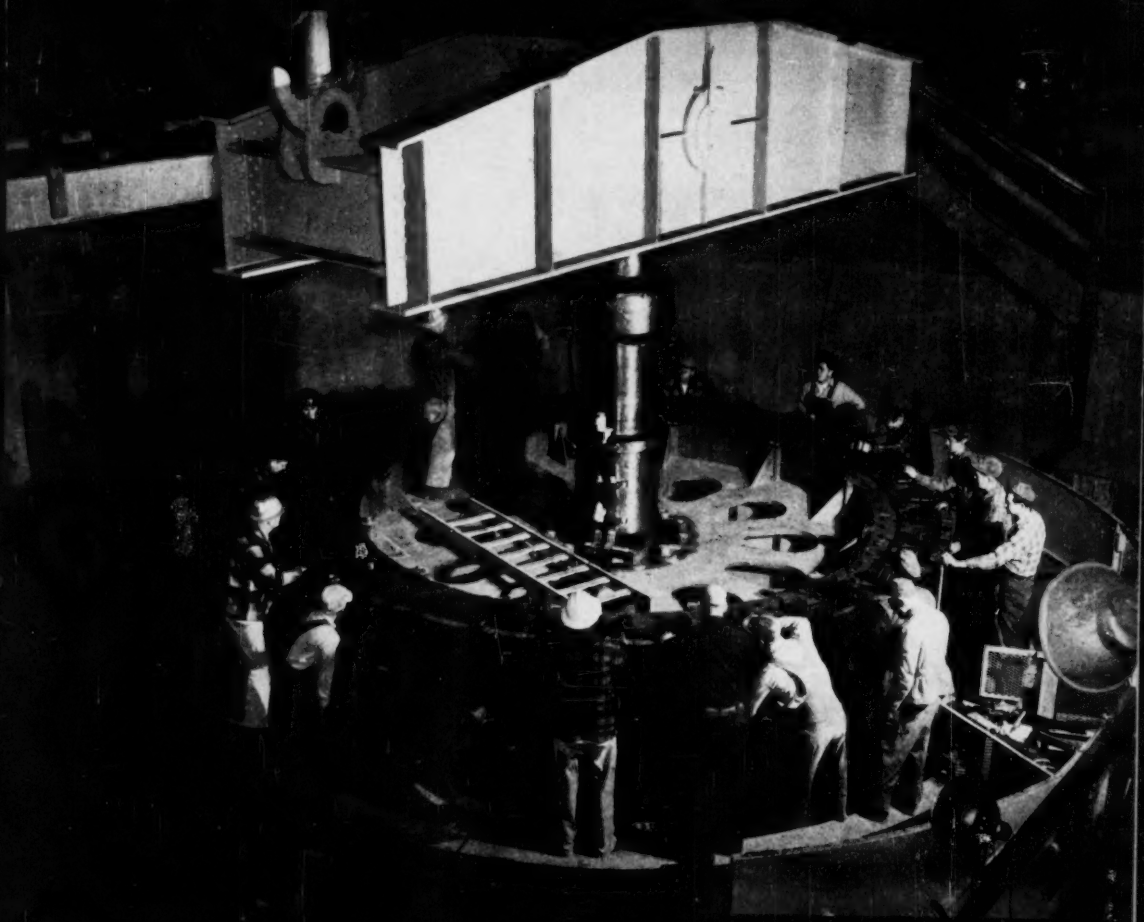
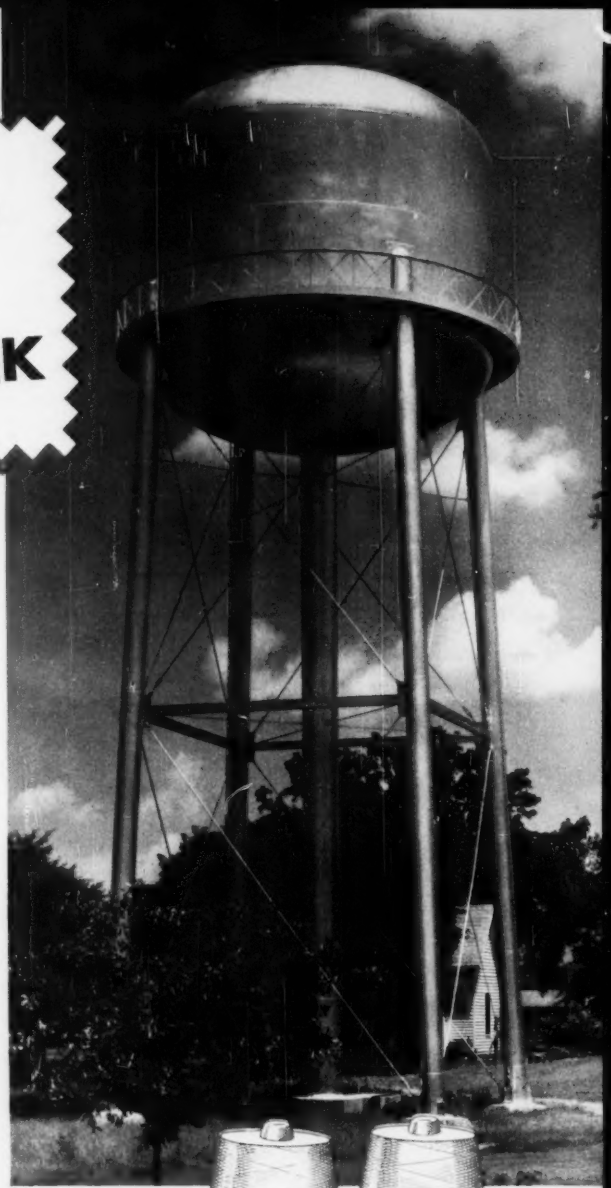
ENGINEERING NEWS-RECORD



A McGRAW-HILL PUBLICATION

PELZER MILLS
installs new
HORTON TANK



Deep in the heart of the Carolina cotton country is another shining example of better water storage—a new Horton elevated water tank. It was recently installed at Pelzer Mills, Pelzer, South Carolina, to provide company homes with more water for domestic use and fire protection.

As a large producer of cotton sheeting, tobacco cloth, broadcloth, diaper, poplin, and print cloth, Pelzer Mills depends on modern, dependable methods in all their operations. That's why Horton elevated storage was chosen to serve their employees.

A Horton elevated tank assures better water service because gravity pressure does the work. Mechanical failures and power shutdowns have a minimum effect. This proven dependability often results in lower fire insurance ratings for many plants.

Horton elevated water tanks with ellipsoidal-bottoms are built in capacities ranging from 15,000 to 500,000 gallons. Horton Waterspheres are built in capacities from 25,000 to 250,000 gallons. Write our nearest office for more details. There is no obligation.

CHICAGO BRIDGE & IRON COMPANY

Atlanta, 3 ..... 2125 Healey Building
Birmingham, 1 ..... 1520 North 50th Street
Boston, 10 ..... 1012—201 Devonshire Street
Chicago, 4 ..... 2101 McCormick Building
Cleveland, 15 ..... 2201 Guildhall Building
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Houston, 2 ..... 2109 National Standard Building
Los Angeles, 17 .. 1511 General Petroleum Building
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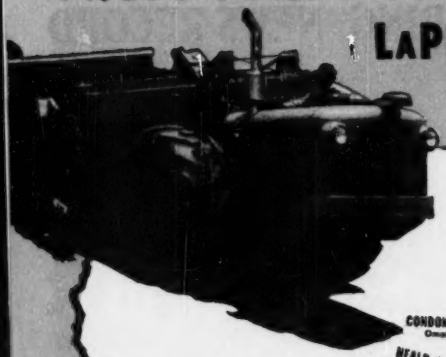
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, and Greenville

In Canada: HORTON STEEL WORKS, Limited, FORT ERIE, Ont.

FROM COAST TO COAST more and more contractors depend on LaPLANT-CHOATE *MOTOR SCRAPERS*

to complete every job profitably and on schedule



THESE are but a few of the many enterprising contractors who depend on the big profit-making advantages of big-producing earthmovers. *They own LaPlant-Choate Motor Scrapers!* Whether they own single units or fleets, they know they can keep ahead of schedule and make money on every job.

When you choose a TS300 Motor Scraper, you get *more* than an earthmover. You get the ability to haul extra yards each trip, make extra trips per hour. You get LaPlant-Choate *dependability*... peak performance day after day... low-cost operation and maintenance that reduce earthmoving costs... the long, dependable service life that protects your investment.

Ask Motor Scraper owners and operators why they're 100% sold on TS300 advantages. See your LaPlant-Choate distributor for complete details. LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa

VILLA CONTRACTING CO.
WESTFIELD, NEW JERSEY

This well-known contractor started his contract on the New Jersey Turnpike with ten LaPlant-Choate Motor Scrapers. The line-up of his TS300 fleet is shown below.

LaPLANT-CHOATE

Cable-operated Scrapers in 6-, 8- and 14-yd. sizes for all makes of track-type tractors.

2- and 4-yd. Scrapers for track-type and rubber-tired industrial tractors.

Hydraulic and Cable-operated Dozers.

foremost in
WATER MEASUREMENT
and
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SINCE 1907

Throughout the world wherever precision measurement is required for proper use and control of water, STEVENS instruments have been a standard of quality since 1907.

Whether the need is a simple staff gage, float gage or complex remote operated recorder, there is a STEVENS instrument to meet the requirement. STEVENS recorders give automatic registration of water levels or liquid flow for daily, weekly or longer periods of unattended operation; automatic control of alarms or pumps; direct float operation or remotely controlled operation.

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Measure deep wells; gage rivers, streams, irrigation ditches and reservoirs; measure sewage flow, assemble accurate permanent records of any liquid surface fluctuation. The STEVENS line is complete in the field of water measurement and control.

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Inquiries regarding special liquid measurement or control problems are invited.

LEUPOLD & STEVENS INSTRUMENTS, INC.
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ENGINEERING NEWS-RECORD

Member ABP ABC

Volume 146 — JUNE 28, 1951 — No. 26

WALDO G. BOWMAN
Editor

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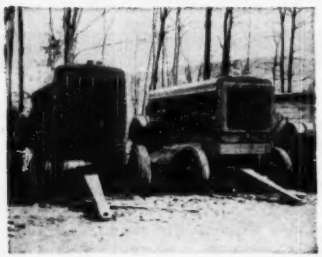
300,000 YARDS

maintenance still too low to be figured

Two of the eight Worthington Blue Brute Wagon Drills that broke cost records for Rock Construction Corporation. Note the amount of line drilling.

President Walt Dunham and Engineer A. Bruce Lattanzi in the company's Downsville Dam office.



Two 500† Worthington Blue Brute Air Compressors supplying air for drills at the Downsville Dam.

Line drilling in blue stone is child's play to those Worthington Blue Brute Wagon Drills.

Rock Construction Corporation of Kingston, New York, working on the Downsville Dam weir and waste channel, got service out of eight wagon drills that constantly amazed them.

Walt Dunham, president, reported: "We have drilled as much as 700-800 feet per 8-hour day per machine. In 165 working days, the machines put out 300,000 cu yds with so little maintenance it can't be figured in cost per yard."

This job also used a number of Worthington Blue Brute Hand-Held Rock Drills. Says Mr. Dunham: "There has been absolutely no maintenance cost. Our operators like them better than anything they have ever used."

Worthington Blue Brute Rock Drill operating ahead of the wagons collaring hole for laying out line drilling.

Contractors everywhere know that a Worthington Blue Brute team—air compressor and tools—makes mincemeat out of even the toughest jobs. See your nearby Worthington distributor for a demonstration. Worthington Pump and Machinery Corporation, Construction Equipment Division, Dunellen, N. J.

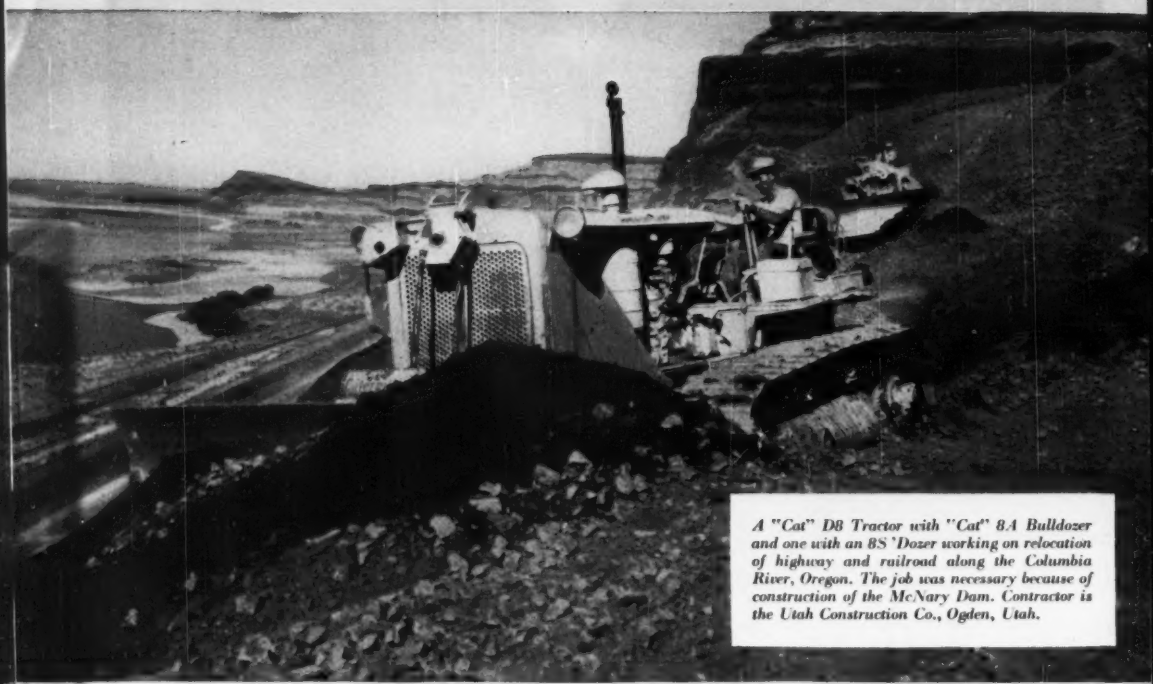
WORTHINGTON

BUY BLUE BRUTES

H.1.3

IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

There's a big



A "Cat" D8 Tractor with "Cat" 8A Bulldozer and one with an 8S 'Dozer working on relocation of highway and railroad along the Columbia River, Oregon. The job was necessary because of construction of the McNary Dam. Contractor is the Utah Construction Co., Ogden, Utah.

IF YOU WANT TO HELP YOUR COUNTRY— AND YOURSELF AT THE SAME TIME— READ EVERY WORD ON THESE TWO PAGES

Keeping equipment *on the job* is of prime importance today—to the nation as well as the contractor. The Military plans to spend 8 to 9 billions on construction in the next 18 months. And a production *backlog* of 52 billions was carried over into 1951 for bridges, roads, earthwork, government work, waterworks and other essential projects.

Right now there is a shortage of materials with which to build urgently needed machines and parts. Military and Defense Rated Orders get the nod over unclassified civilian needs. Steel and other materials are in short supply. This means that you—with our help—must get every last machine-power hour out of the equipment and parts you now have.

Down-time will not only weaken the defense effort, it can put the contractor himself in the hole. To get future business, he must get current jobs done without penalty or sacrificing his bond. Down-time means bad distribution of equipment: it means costly damage to equipment forced to do work it's not built to handle.

So to stay in business profitably, and help America arm for defense, do these things now:

1. Use equipment properly. "Cat" machines are built for hard use—not abuse.
2. Give *extra* attention *now* to preventive maintenance (see next page).
3. Have your equipment superintendent plan *ways and means* with your "Caterpillar" dealer. His maintenance responsibility begins where your operators' and mechanics' responsibility ends. He has the skilled servicemen and equipment to rework and rebuild worn parts to keep your machines on the job longer.

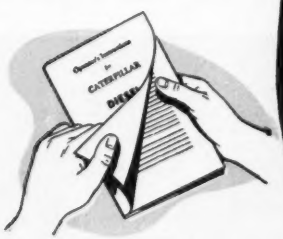
CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

The last war showed the Military that "Cat" Earthmoving Equipment was as important to defense and offense as tanks. Here Sgt. Robert Chrisman operates a "Cat" D7 Tractor with matching blade on Davison airstrip at Ft. Belvoir, Va.

job ahead!

You're the Doctor

Today no owner can afford to think of direct costs alone. Good care of equipment can mean the difference between a producing machine and one laid up for repairs. To see how good care can save many hours of equipment life, reread your Operator's Instruction Book often and follow these suggestions.



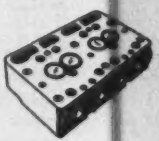
• DUST

Think of dust as Machine Enemy No. 1. A few grains today—a few more tomorrow—and soon the result adds up to serious wear. Dust or dirt plugged breathers or air cleaners—use of dirty oil containers—loose intake manifolds—loose inspection covers—dirty clutch compartment—failure to wash flywheel clutch compartment—worn seals on crankshaft—defective gaskets—failure to clean oil filter openings . . . these are some of the vulnerable spots.

• TRACK ASSEMBLY

Don't let abusive use or neglect cripple the service life of your track assembly. Track adjustment and lubrication of rollers, carrier rollers and idlers are your job. Before excessive wear occurs on grousers, links, pins, bushings, idlers, rollers and sprockets, call in your "Caterpillar" dealer. He can build up grousers, rollers, idlers and links, and replace sprocket rims and turn pins and bushings so you will have many additional hours of service.

• CYLINDER HEADS

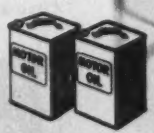


Prevent cracked cylinder heads by avoiding overheating, freezing, scale deposits, filling a hot engine with cold water, pulling heads down too tight, and other poor maintenance practices. Your "Caterpillar" dealer can repair most cracked cylinder heads. He can replace worn valve seats with valve inserts and restore the rocker arm mechanism to serviceable limits. Consult your Operator's Instruction Book for proper cooling system and valve care.

• COOLING

Don't let your engine overheat. Keep the cooling system free of scale, rust and sediment. Use soft or treated water, and when freezing temperatures exist, protect your engine with anti-freeze. Clean the radiator regularly with chemical flushing solutions. Remove foreign matter from the core by brushing or washing. Prevent engine troubles which come with overheating. Consult your Operator's Instruction Book for proper cooling system care.

• LUBRICATION



Careful lubrication practices will add much to your satisfaction through equipment performance, economy and long life. Use *only* recommended lubricants, changing the lubricant at proper intervals. And use *only* "Caterpillar"-proved filter elements. Remove dirt from fittings and clean around the crankcase filler cap before adding oil. A little care saves many hours of engine life. Consult the lubrication chart in your Operator's Instruction Book.

• PISTONS AND LINERS

Almost all the piston wear occurs in the upper ring groove. Your "Caterpillar" dealer can renew your pistons by machining the upper ring groove for a wide ring, many sizes of which are chrome plated. Worn liners can be deglazed and put back to work for many additional hours of service life. Consult your Operator's Instruction Book for information on lubrication and the oil cooling system.

CATERPILLAR

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DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

HOW Prestressed Concrete Steel-Cylinder Pipe IS MADE

1. A STEEL CYLINDER . . . is formed and hydrostatically tested up to a tension in the steel of 25,000 psi. *(Steel cylinder provides high beam strength and water tightness.)*

2. A CONCRETE CORE . . . is formed inside the steel cylinder. This becomes a structural part of the pipe. *(Concrete lining provides initial and continued high rate of flow.)*

3. HIGH TENSILE STEEL WIRES . . . are wound around the steel cylinder and concrete core at constant tension. *(Steel wire prestresses steel cylinder and concrete core by compressing them. Compression is relieved as internal water pressure increases, thus permitting high operating pressures without tension in concrete.)*

4. A CEMENT MORTAR . . . encasement provides a permanent exterior jacket. *(Mortar has proven the most successful protection against corrosion and electrolytic action.)*

Three materials are used in the manufacture of Prestressed Concrete Steel-Cylinder Pipe . . . sheet steel, high tensile steel wire, and concrete. Each contributes qualities found in no other material to produce a *combination of advantages found in no other pipe.*

This combination produces water pressure pipe that will give the longest trouble-free service at the lowest cost. That's why Prestressed Concrete Steel-Cylinder Pipe was picked for one of America's *longest* high-pressure water supply lines—the Saginaw-Midland pipe line in Michigan, and for lines in Miami, Fla., Rochester, N. Y. and elsewhere. Prestressed Pipe is manufactured in sizes from 16" up for any pressure common to American water-works practice.

Our engineers know pipe line design and laying problems. Consult them. There will be no obligation.

Price Brothers Company

1763 EAST MONUMENT AVENUE, DAYTON 1, OHIO

Please send me booklets on Prestressed Pipe.

- ☐ Manufacturing and Prestressing
- ☐ Tapping under Pressure
- ☐ AWWA Specification No. 78.2-T

NAME_____

TITLE_____

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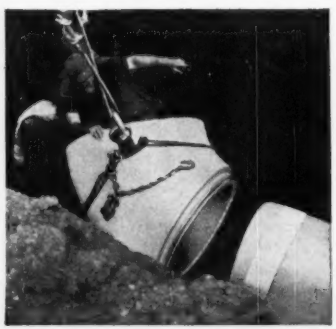
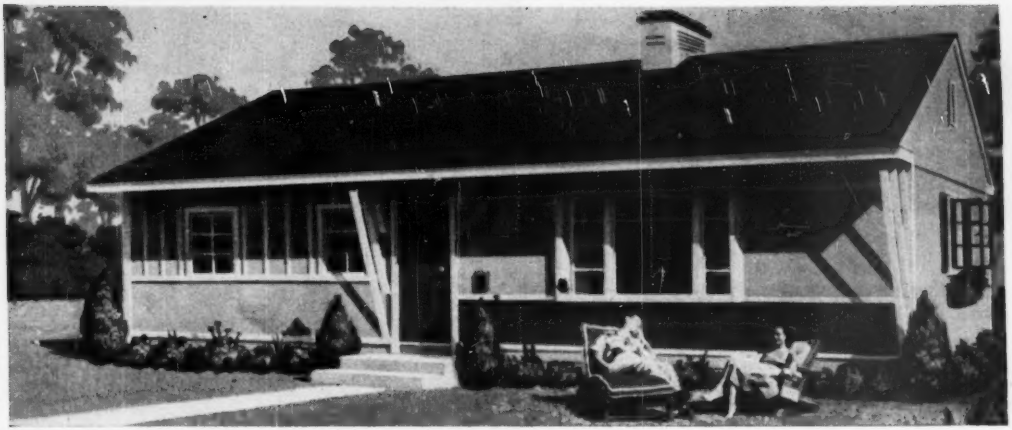
ADDRESS_____

1763

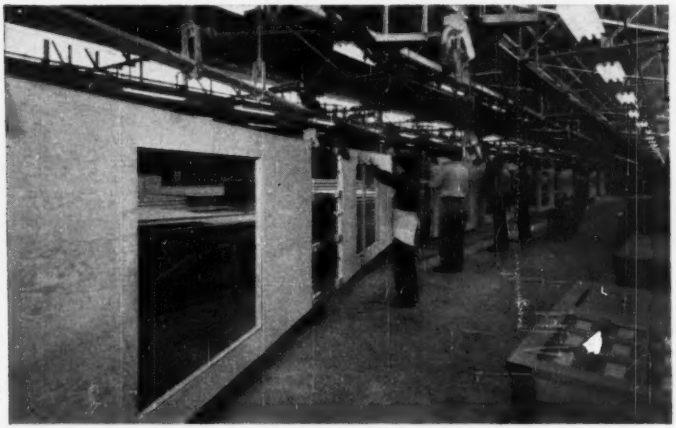
Send for these fact-packed booklets on Price Brothers Prestressed Concrete Steel-Cylinder Pipe.

Installing Price Brothers Prestressed Pipe on the 80-mile Saginaw-Midland project, one of America's longest high-pressure water supply pipe lines. Elbows go into line easily and quickly.





THE CORONADO, new-model Gunnison Home, is available in five sizes . . . two or three bedrooms . . . two elevations.



TWENTY-FIVE MINUTES is time enough to produce a home on the efficient Gunnison production line. Photo shows the quality-control inspection prior to the application of finishes.

Typical uses of penta-treated wood

Wherever wood is used, penta treatment will give it longer life. The following table gives the amount—in pounds—of 5% penta solution in oil that a cubic foot of wood should retain for maximum protection.

	Humidity average to low	Humidity average high
Sills and plates	6	8
Joists and girders	6	8
Screeds and subflooring	6	8
Factory flooring	6	8
Roof plank	6	8
Platforms and decking	6	8
Posts and fences	6	8
Cooling towers	—	8-10
Sign material	6	8
Millwork	6	8
Highway guardrails	6	8
Railway cars	6	8
Bridge timbers	8	10-12
Utility poles	8	8-10
Crossarms	6	8

Note: Higher treatments are recommended where wood is to serve under severe conditions, such as in the tropics. Recommendations will be furnished on request.

"You are assured of VALUE..."

"You are assured of VALUE when you buy a Gunnison Home," says Gunnison Homes, Inc., subsidiary of United States Steel Corporation, "because only the finest materials and craftsmanship go into the manufacture of these 'homes of tomorrow'!"

Wood, treated with Monsanto Penta (pentachlorophenol), is one of the assured-value features of Gunnison Homes. The Gunnison factory, at New Albany, Indiana, applies penta to the base of studs and the gutter end returns of all its homes. Gunnison dealers are instructed to penta-treat other important parts of the structures.

Water-repellent formulations of Monsanto Penta provide dimensional stability which is important in prefabrication. In the case of Gunnison Homes, penta formulations are *clean*. The treated wood can be painted, varnished or given any of the modern finishes.

Monsanto Penta adds years to the life of wood by protecting it against termites and other wood-boring insects and by preventing decay caused by fungi. It is a stable chemical that gives lasting protection. It does not leach. Rain and ground water do not dissolve penta and carry it away.

Whether you employ wood in trim or for heaviest structural timbers, you can give it longer life with Monsanto Penta. Write for information on penta and for names of suppliers of penta-treated lumber, penta solutions or custom-treating service. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1759-F South Second Street, St. Louis 4, Missouri.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.

MONSANTO
CHEMICALS – PLASTICS

SERVING INDUSTRY... WHICH SERVES MANKIND

What's behind the Euclid name?

Engineered...for the Job

Of simple design and rugged construction, Euclids are engineered and built specifically for moving earth, rock, coal and ore in off-the-highway service.

There is a Euclid model to meet every requirement in off-the-highway work, and body designs for all types of materials. Capacities of Rear-Dump "Eucs" range from 10 to 34 tons, with diesel engines of 125 to 400 h.p. Top speeds with full payload up to 35.7 m.p.h. . . . semi-rigid or spring mounted drive axle, five or 10 speed transmission.

Bottom-Dump Euclids range in capacity from 13 to 25 cu. yds., have diesel engines of 190 to 300 h.p. . . . top speeds loaded up to 34.4 m.p.h.

Also job proved for high production at low cost are the Euclid Loader and the Euclid Scraper. Write for complete information on the Euclid line of earth moving equipment or call your distributor.

The EUCLID ROAD MACHINERY Co.
CLEVELAND 17, OHIO

MORE LOADS PER HOUR—
MORE PROFIT PER LOAD

CABLE ADDRESS: YUKLID CODE: BENTLEY

EUCLIDS *Move the Earth*

SPECIFICATIONS....Acoustical
1. WORK INCLUDED. Work required includes all labor, materials, equipment and services necessary to install Acoustical materials on ceilings of areas where such materials are indicated on the drawings and/or in the schedule of room finishes.
2. MATERIALS. The suspended ceiling and construction shall be Acousti-Line, consisting of steel panel support-
...here's one contract
you can let and forget...
You're SURE the job will be done right...
when you call in your Acousti-Celotex Distributor

for Sound Conditioning

General contractors all over the country have found that when it comes to Sound Conditioning . . . you can turn the responsibility over to your local Acousti-Celotex Distributor, and *forget it!*

From start to finish, he frees you from every worry and bother. No tampering with specifications! No fear of slip-shod work! You can depend on your local distributor of Acousti-Celotex products *every time*—for the most effective, most attractive installation possible!

For he's a member of the world's most experienced Sound Conditioning organization, with thousands of actual installations to its credit. He has the trained, experienced men—the job-proved techniques—the complete line of top quality acoustical materials necessary to meet every specification, every requirement, every building code!

FOR A FREE ANALYSIS of your particular noise problems, write now for the name of your local distributor of Acousti-Celotex products. On request, we will also send you a free copy of the informative booklet, "25 Questions and Answers on Sound Conditioning." Address: The Celotex Corporation, Dept. ENR-61, 120 S. La Salle St., Chicago 3, Illinois. In Canada: Dominion Sound Equipments, Ltd., Montreal, Quebec.

Sound Conditioning is a Sound Investment...

ACOUSTI-CELOTEX

TRADEMARK REGISTERED U. S. PAT. OFF.

Sound Conditioning Products

PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

THE CELOTEX CORPORATION, 120 S. LA SALLE ST., CHICAGO 3, ILLINOIS

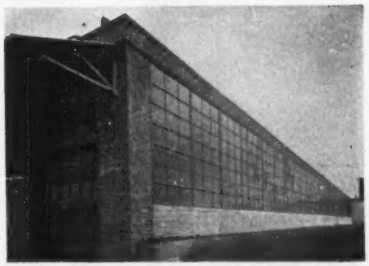
RUSH ORDER *Plants*

In construction products **CECO ENGINEERING**

Go Up On time...

with Open-Web Steel Joist Construction

There's need for speed in building today—an urgency that has to be met. For the nation's industrial plants must expand so enough of the things vital to defense can be made in quantity—quickly. And to help you complete more plants "on time", open-web steel joist construction truly meets the need. Here is the fastest way ever to build, with a saving in labor, too. No temporary framework is necessary—there's nothing to take down. So since speed is the need on "rush order" plants, specify Ceco open-web steel joists. They are fabricated to exact sizes in the factory, come to the job tagged, ready to install. Ceco assures you fast service from five strategically located plants: Birmingham, Chicago, Houston, and the New York and Pittsburgh areas. When speed's your need—call Ceco.



Ceco open-web steel joists are especially suitable for defense plants. Their light weight permits speedy installation without special equipment or falsework—also reduces the size of supporting beams, columns and footings.

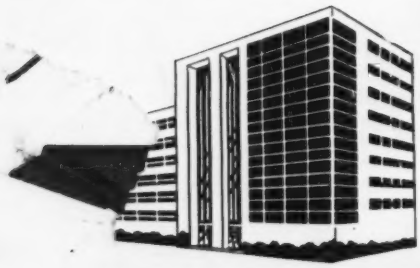
Standard joists span up to 32 feet and Long-span joists up to 64 feet. By using these maximum spans, the number of columns are reduced and more manufacturing area is made available.

CECO STEEL PRODUCTS CORPORATION
General Offices: 5601 West 26th Street, Chicago 50, Illinois
Offices, warehouses and fabricating plants in principal cities

CECO STEEL®

makes the big difference

MISSISSIPPI WIRE GLASS



helps...

Polished Misco Wire Glass, highest achievement of the glass manufacturer's art, combines the utmost in protection with modern beauty.

Polished Wire Glass by Mississippi, approved fire safeguard, helps prevent drafts, is effective in holding fires within bounds of origin.

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Free Samples on Request.
For details see Sweet's Architectural File

Now, more than ever before, it is necessary that constant vigilance is maintained and that every precaution is taken to insure against losses by fire.

Records show that many large loss fires result from exposure through ordinary glass windows.

Mississippi Wire Glass* affords constant protection at minimum cost in windows, doors, transoms, skylights, fire escapes, vertical shafts, partitions, exterior walls and all other places where fire or breakage protection is required... helps to avert tragic and costly fire losses that result from exposure through ordinary glass.

Specify Mississippi Wire Glass — the *original* solid wire glass upon which the Underwriters' Standard was based in 1899... the standard today by which all others are judged. Carried in stock by distributors of quality glass everywhere.

*Approved Fire Retardant No. 32

MISSISSIPPI *Glass* COMPANY

88 ANGELICA ST. SAINT LOUIS 7, MO.

NEW YORK • CHICAGO • FULLERTON, CALIF.

This Seal Identifies Mississippi Wire Glass

WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

NEWS BRIEFS

• **Embarrassing mistake**—Dario Travaini, superintendent of water and sewers for Phoenix, Ariz., accused the Maricopa County engineering department of a tactical snafu ("situation normal all fouled up") after county crews covered valve boxes for city water lines over a 3-mi repaving project. Travaini said that a survey crew had a month's work relocating the boxes. The subsequent ripping up of newly-paved highway also resulted in the usual adverse public comment.

• **Contract awarded by lot**—Eight contracting firms recently bid on a school building job in Jackson County, Mo. Two of the bidders, the Sharp Brothers Contracting Co. and Scott & Mastin, had identical, low, base bids—each $74,950. On agreement by the two firms, decision was made by drawing one name from a hat. Sharp Brothers won.

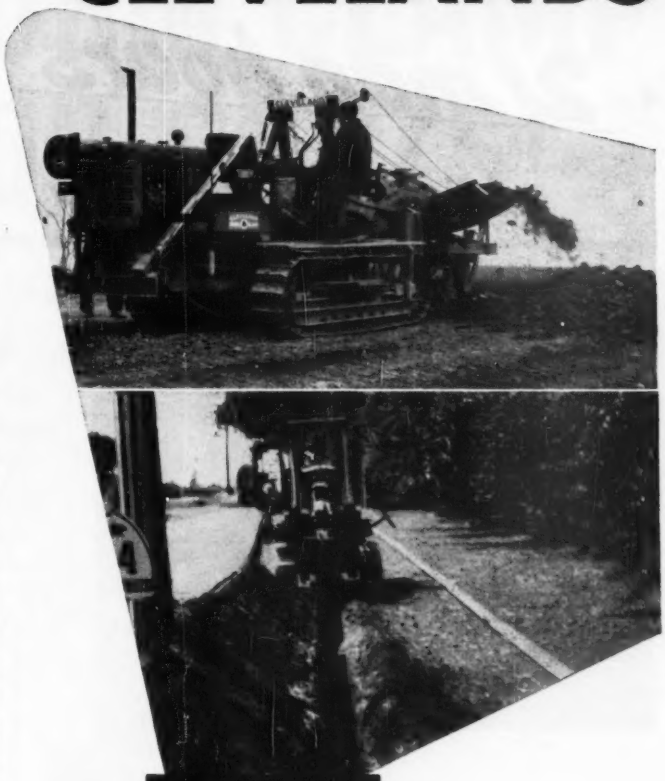
• **Historic old bridge**—A new steel bridge is being built across the west fork of the Monongahela River at Barnes' Mills, W. Va., alongside a wooden covered bridge built in 1847. Because of its historic interest, the latter bridge will not be destroyed. In the Civil War it was guarded by two future presidents of the United States—Rutherford B. Hayes and William McKinley. It was also inspected by Gen. Geo. B. McClellan and written up by Whitelaw Reid, future editor of the New York "Tribune" and Ambassador to the Court of St. James.

• **A new danger**—The Pennsylvania highway department has given this warning to its personnel: "Information and tests show a real danger of exploding dynamite caps if a two-way radio transmitter is used within 20 feet of an uncoiled wire on the caps. Never carry dynamite caps in a car or truck equipped with two-way radio." The warning continued that caps should be transported in metal containers, never opened in the vicinity of a transmitter and a transmitter should not be operated within 50 ft of any electric blasting operation.

• **N. J. Turnpike service stations**—The Cities Service Oil Co. of New York has been awarded a contract to operate six service stations on the northern section of the 118-mile New Jersey Turnpike now nearing completion.

(*Continued on next page*)

GET CLEVELANDS



GET faster cleaner cheaper easier TRENCHING

Faster trenching because CLEVELANDS have the bonus power and engineered higher cutting capacity to deliver the trench dependably ahead of schedule—faster because easy-loading CLEVELANDS jump quickly from job to job. Cleaner trenching because of hairline controls and compact maneuverability, because the quick-shift conveyor positions the dirt accurately for easy backfill, because sure-footed smooth-pad crawlers protect walks, lawns and curbs. Cheaper trenching because of CLEVELANDS established lower operating and maintenance costs, because rugged CLEVELANDS stay on the job and out of the shop—cheaper because versatile CLEVELANDS can be profitably applied to a greater variety of work. And easier trenching because CLEVELANDS have the guts for dependable top performance in the toughest going you can find—mud, sand or rock—on the flat or in the hills. Get the full details from your local distributor today.

THE CLEVELAND TRENCHER CO.
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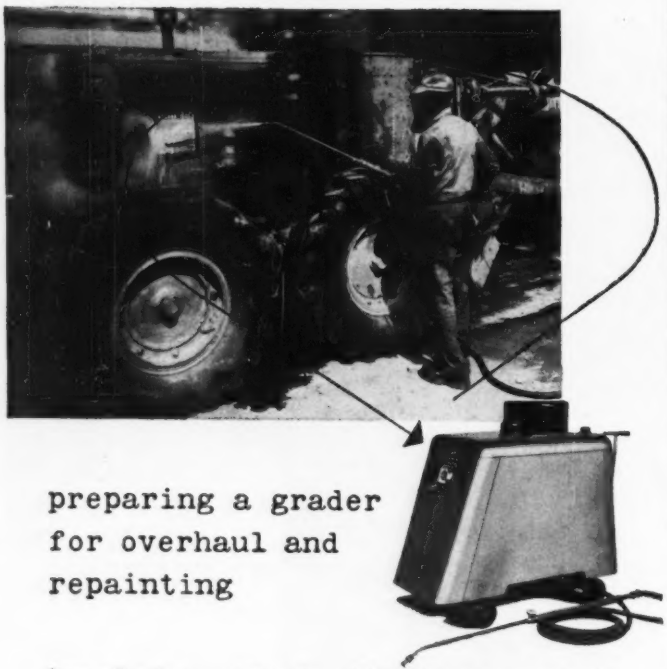
saved:

21 man hours

with Hypressure Jenny



preparing a grader for overhaul and repainting

Jenny will make comparable savings of time and money on any cleaning job you have. Jenny cleans so fast—10 times faster than hand methods—you can strip mud, muck and grease from your heavy equipment every day for thorough inspection, servicing and emergency repairs if necessary—right on the job. In addition to keeping heavy machinery, trucks and equipment clean and serviceable, preparing them for overhaul or repainting, Hypressure Jenny is unmatched for the fast and thorough cleaning of bridge and structural work preparatory to painting. Jenny also cleans brick . . . tile . . . stone . . . concrete . . . building exteriors, etc. faster, better and at less cost than by any other method.

Hypressure Jenny is sturdy, portable, safe and easy to use. Ordinary labor can operate it.

Write for free illustrated booklet on 1001 time and money-saving uses. No obligation.

HYPRESSURE JENNY DIVISION

HOMESTEAD VALVE MANUFACTURING CO.

Serving since 1882

P. O. BOX 31 CORAOPOLIS, PA.

Twelve oil companies submitted bids on the exclusive right to sell gas and oil products on the turnpike, but the Cities Service offer was the highest. The company will pay 7.019 cents per gallon on its motor fuel sales (including Diesel oil), plus 5 percent on the gross sale of other products.

Philadelphia redevelopment – The Philadelphia City Planning Commission has announced a multi-million dollar program for redevelopment of the University Area in West Philadelphia. Garden-apartment developments will be built in the area to arrest the so-called "flight to the suburbs" of city residents. One will be in the block between Chestnut and Walnut Sts., from 32nd to 33rd Sts. The commission cites the proximity of the developments to major centers of employment—such as the University of Pennsylvania, the Drexel Institute of Technology, the Philadelphia General Hospital, Veterans Hospital, Pennsylvania Railroad Office Building and others. A commercial development is also charted and a widening development of some highways.

• **Long runway**—One of the longest paved runways has been put officially into use in Hawaii. It was dedicated May 15 but actually used a few days before for the takeoff of the B-47 jet bombers which set a Honolulu-to-California speed record. The new runway spans both Honolulu International Airport and adjoining Hickam Field. It is 13,067-ft long, 200-ft wide, and is bolstered by a 500-ft-width shoulder. Its coral base is 5 ft thick.

• **Dangerous bubbles**—Barrages of contaminated bubbles from the Los Angeles Hyperion sewage disposal plant spread over parts of nearby El Segundo and tested the ingenuity of the plant staff recently. Engineers succeeded in breaking up the formation of the bubbles on the surface of aeration tanks by using streams of water from fire hoses. Bubbles are formed when air is forced through the sewage water containing detergents and soap substances. Sea breezes waft the bubbles off the surface and blow them into the surrounding community, creating a health hazard.

• **Summer courses**—College of engineering, University of Illinois offers these civil engineering courses June 22-Aug. 18: Surveying theory; surveying practice; structural analysis; elementary structural design; structural design; foundations and retaining walls; steel design; and special problems. The summer surveying camp is in a camp in Northern Minnesota.

CUT FORM CLAMP LABOR COSTS!

Compare the following features of the

3 piece **TAPER-TYE** with 5 piece **SHE BOLT ASSEMBLIES**

	ASSEMBLY COST	STRIPPING	RE-ASSEMBLY COST	CENTER OR TIE RODS		
				Up to 14" Concrete	15" to 29" Concrete	30" to 46" Concrete
TAPER-TYE	None	Approx. Three To One*	None	None	(She-Bolt Extension)	One inexpensive Coupling
5 PIECE SHE-BOLT ASSEMBLY	Approx. 10¢ per set*		Approx. 10¢ per set	2" to 9" Tie Rods	10" to 24" Tie Rods	25" to 41" Tie Rods

* As quoted by most superintendents who have used both types.

AVERAGE QUOTED SAVING 40%

According to superintendents actually using TAPER-TYES. Write for verification of savings on typical jobs.

ELIMINATES EXPENSIVE MAKEUP

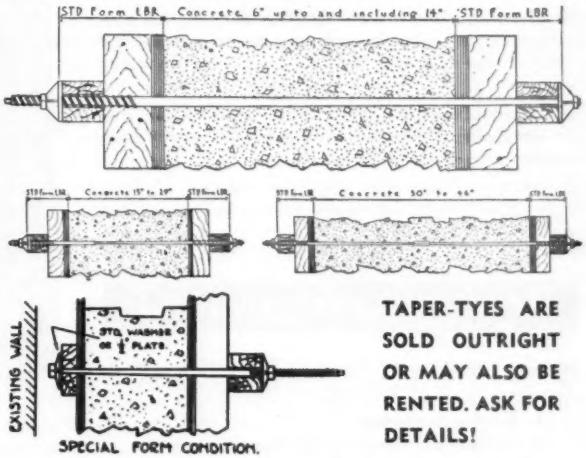
One continuous tapered rod, adjustable 6" to 14" concrete. Also combinations up to 46" as illustrated.

SAVE MONEY ON STRIPPING

Remove true tapered rod from one side only!

FAST INSTALLATION AND ADJUSTMENT

True tapered rod easily installed. All adjustments one side only.



TAPER-TYES ARE SOLD OUTRIGHT OR MAY ALSO BE RENTED. ASK FOR DETAILS!

9,000 Pound TAPER-TYE CONCRETE FORM CLAMP

Patent No. 2365563

PHYSICAL PROPERTIES OF THE TAPER-TYE

Rod Length	Diameter		Taper Length	Acme Thread Length	Washer Diameter	Distance Between Washers	
	Large End	Small End				Min.	Max.
34"	⅝"	½"	22"	10"	4½"	22"	30½"

H. J. KRUEPER CO.

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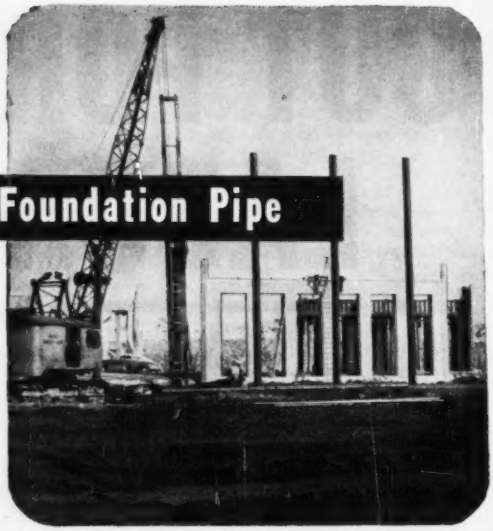
6 ADVANTAGES

Of Specifying Armco Foundation Pipe



Armco Foundation Pipe is a spirally wound and welded pipe made on automatic machines from coils of specially-prepared flat-rolled steel. It has many desirable advantages.

1. WIDE RANGE OF SIZES. Diameters from 6 to 36 inches with wall thicknesses from 9/64- to 1/2-inch save metal and money because you can use light or heavy wall as needed.

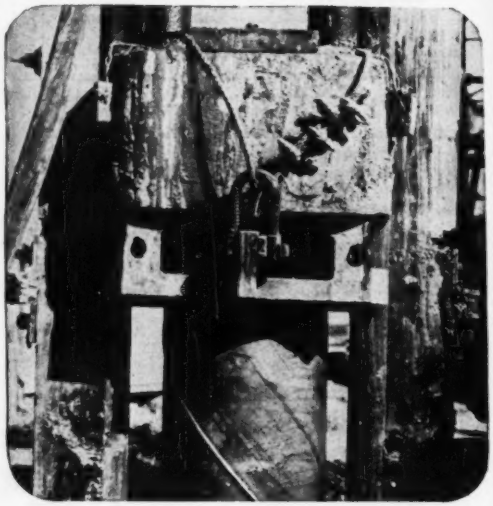
2. EXTRA LONG LENGTHS. Armco Pipe is supplied in any length that can be handled and shipped. Long lengths mean fewer field splices and cut handling costs.

3. EXCEPTIONALLY ROUND AND STRAIGHT. This reduces the number of crooked or rejected piles, and piles with specified load reduction. It also simplifies inspection after driving.

4. HIGH COLLAPSE RESISTANCE. The tough spiral weld gives Armco Pipe tremendous resistance to crushing and extra lateral stiffness in even the longest lengths. It permits driving with a simple head and no mandrel.

5. UNIFORM DIAMETER END TO END. Armco Pipe has a constant cross section for good end bearing with high bending resistance throughout its entire length.

6. MILL-ATTACHED CLOSURES. Steel end-closure plates, cone points or cutting shoes are mill-attached to save time and trouble in the field.



WHERE ARMCO PIPE CAN HELP YOU

Armco Foundation Pipe is used for end bearing, friction, compactor and batter piles, caissons and underpinning in:

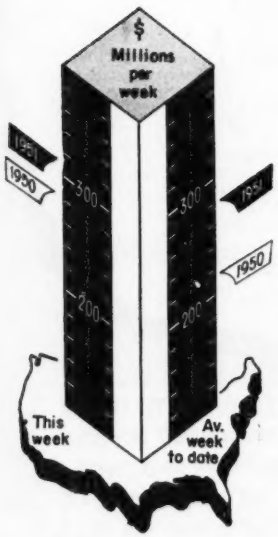
1. **Building foundations**
2. **Highway and railway bridge foundations**
3. **Wharves and piers**
4. **Industrial construction**
5. **General foundation work**

For detailed information on Armco Foundation Pipe write Armco Drainage & Metal Products, Inc., Welded Pipe Sales Division, 3641 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. Export: The Armco International Corporation.

ARMCO FOUNDATION PIPE ARMCO

MORE SCRAP MEANS MORE STEEL . . . TURN YOURS IN TODAY

THE CONSTRUCTION WEEK



Contracts by type of work

	This Week	Cumulative 26 wks— 1951	1950	% chge
Waterworks	$2.1	$115.4	$118.5	−3
Sewerage	6.3	164.3	128.0	+28
Bridges	11.5	153.2	192.2	−20
Highways	30.7	546.8	617.7	−11
Earthwork, Waterways	5.5	273.4	236.3	+16
Buildings:				
Public	31.3	111.6	$28.3	+34
Housg., pub.	46.7	329.9	118.1	+179
Housg., priv.	41.8	1,024.9	1,906.8	−46
Commercial	7.4	346.9	461.6	−25
Industrial	100.2	2,374.8	579.2	+310
Unclassified	33.2	841.7	478.4	+76
Total	**$316.7**	**$7,282.9**	**$5,665.1**	**+29**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost.	June '51	542.68	260.86	113.76
Bldg. Cost	June '51	400.75	216.63	113.92
Volume	May '51	501	204	145

NEXT ROUND—Another round began last week in a long drawn-out court battle between the construction firm of Brown & Root, of Houston, and 63 Texas labor organizations. Brown & Root is defending its right to continue its open shop policy. The Third Court of Civil Appeals received the unions' appeal from an injunction granted against the Texas Federation of Labor and other defendants on April 16 by District Judge Charles Betts of Austin (ENR Apr. 26, p. 26). Records in the case are so voluminous it will take the court weeks to study them and render an opinion.

OVERLOADERS WOULD BE BARRED—Aimed to eliminate the overloading and speeding of dump trucks on construction jobs, a special Massachusetts legislative commission has recommended the adoption of strict regulations and additional enforcement means. Owners found guilty of overloading trucks or trailers would be barred for a period of three years from obtaining any contracts for the construction or repair of roads, airports and other public works. Regulation also would stop the practice of some sand and gravel pit operators who make truckers haul an overload while paying for legal weight only, it is said.

KEEPS WATER DISTRICTS ON THE GROUND—Assistant Attorney General Bruce Allen of Texas ruled recently that moisture in the air is not a natural resource and therefore water districts do not have the power to enter rain-making contracts. This ruling came when Zavala and Uvalde Counties asked permission to form a water control and improvement district for the purpose of contracting with cloud seeders.

STRICTLY BUSINESS—Last week 66 sales engineers and district managers of the Austin Company, meeting at the home office in Cleveland, decided to look at some of their in-process products. Chartering a couple of railroad cars, they went to New York, treked by bus over the metropolitan area to factory jobs they are building for Westinghouse, Weston Instrument and Merck and to a suburban department store for Abraham & Straus. Entraining for Cleveland the same evening they carried with them the unusual distinction—for junkets of this kind—of having attended strictly to business, with no theater or night club interlude.

TOO LITTLE BUSINESS—Labor is ready to join with construction firms in pressuring NPA to relax Regulation M-4 in areas where defense contracts are meager. The Building Industry Employers of New York State, meeting in Lake Placid last week, got this assurance from Joseph D. Keenan of the AFL. They may sponsor a national association of builders to present to the NPA the problem of too-little-business-to-stay-in-business.

MOVING TARGET—How much public housing? Congress obviously is confused. Last week, the Senate thought 50,000 units would do for 1952. But in May, with no Presidential aspirants such as Senators Taft and Dirksen, the House settled for 5,000 right after the President had asked for 75,000. The six-year plan that Congress had adopted earlier called for 135,000 yearly, so everybody is agreed there should be a cut. The betting now is that the Senate figure will stick.

RICHMOND SCREED CHAIRS NEVER LET YOU DOWN

Richmond Adjustable Screed Supports come in such a wide variety of types and sizes there's never a question of your being able to get the one that best fills the bill for any job. Both LIGHT and HEAVY Screed Chairs are available—all are ADJUSTABLE—and there are types for adjustment below the screed pipe as well as those which are adjusted by wrench from above the slab. 3 types of heads for 1" I.D. Pipe, T-Bar or Flat Bar—any of which can be combined with any of the 6 different bases.

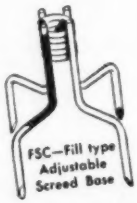
SC Adjustable Screed Base

SH Cradle Head

D-SH Offset Screed Head

SSH Special Screed Head

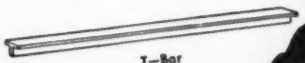
OSC Adjustable Screed Base


FSC—Fill type Adjustable Screed Base

SHSC—Special Height Screed Chair

SCO—Offset Screed Chair

JSC—Joist type Adjustable Screed Base


T—Bar

DID YOU HEAR WHAT MIKE TOLD THAT GREENHORN WHO CAME IN YESTIDDY?
SURE—TOLD HIM TO FIND A LEFT-HANDED MONKEY WRENCH AND THEN GO GIT A SCREED CHAIR AND SIT IN IT.
INSIST ON RICHMOND
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RICHMOND KNOW-HOW—DEPENDABILITY—SERVICE—ESTIMATES & JOB PLANNING

PRESSURE OF NEEDS BOOSTS STATE, LOCAL WORKS

Huge needs for new public construction promise to help keep state and local work high—perhaps for years to come.

Financing is a problem, as always. State and municipal governments are faced with a construction backlog—as measured by ENR—of over $25 billion. Actual needs are even greater, and they are growing all the time, keeping overall requirements well ahead of work put in place. Meeting this demand for new facilities will put a heavy strain on the financial resources—and ingenuity—of state and municipal authorities.

But many needs are too great to be ignored—so state and local authorities will be forced to find ways to finance the required construction. They should be able to do it. They have already learned a lot about raising money. And some of the same forces that cause new needs for public construction—such as the growth of cities and the increase in highway traffic—will themselves help provide revenues to pay for new construction.

• **More People**—Huge population growth is putting pressure on all public facilities. The U. S. population grew 14.3% in the forties—twice as fast as in the previous decade. And the growth is still going on. The population increased an estimated 1.6% in 1950 alone.

The number of people living in towns and cities is growing even faster. Urban population went up 18.3% between 1940 and 1950, as against an increase of only 7.2% in rural areas. Thus pressure on municipal facilities—roads, water systems, sewers, hospitals and schools—is greater than even the vast growth in population indicates.

The need for new schools is especially great, since most of the added population is between ages one and ten. School-building fell far behind during the war, hasn't caught up with enrollment yet. And population growth still hasn't hit the schools as much as it will—enrollment in public schools jumped 900,000 last year, but will rise by over one million a year for several years after 1952.

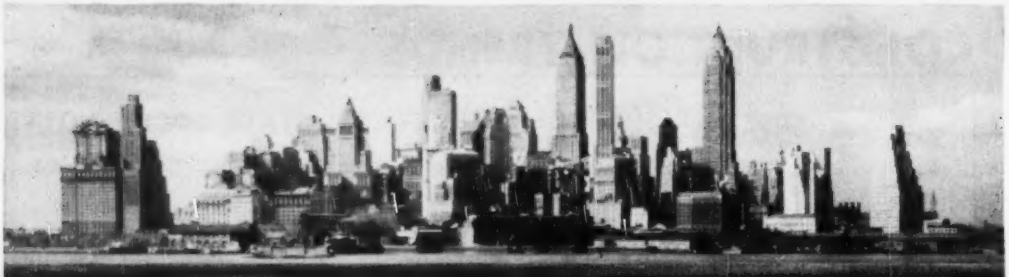
The same forces that caused urban growth help pay for new public facilities. New industries grew up in the cities during the forties, attracting workers from the farms and thus increasing urban population. Industrial expansion was especially marked in the south and west, where urban growth was greatest. Now the new industry is pumping money into the cities, adding to real estate values, ensuring bigger tax revenues—and thus helping to back state and local issues of bonds to pay for new construction.

• **Big Highway Needs**—The U. S. spent more than $2.4 billion on highways last year—and still didn't catch up with needs. The total backlog of needs for highway work has been estimated at between $40 and $60 billion.

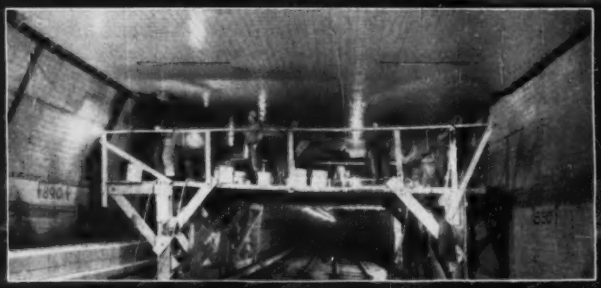
Highway traffic is growing 6% or more a year. Truck traffic, which puts a heavy strain on the roads, is increasing even faster—about 13% a year. With use increasing so fast, highway construction will have to stay near 1950 levels just to keep up with the growth in traffic—let alone eliminate the backlog of needs left by neglect of road-building in World War II.

Fortunately, highways can help pay for themselves. Revenues from gasoline taxes go up as traffic increases. And states are turning more to toll superhighways—like the Pennsylvania Turnpike and the New York Thruway—that will pay for themselves as they are used.

(A future *Trend* will deal with special financial problems arising from current high costs of state and municipal construction.)



13 Fathoms under the East River



Above photo shows "WATERPLUG Crew" at work, in New York City's famous Battery Tunnels, East River, New York.

Great Engineers Never Guess

Tunnel engineers and men, who work many fathoms under rivers and harbors in every large city, know exactly what WATERPLUG will do and how to use it to withstand years of wear and tear in tubes, tunnels and underground structures.

Since 1912, WATERPLUG has been an essential item on the "must list" of every construction engineer, architect and superintendent, throughout every civilized land, where large projects, in rivers and harbors, are carried to successful conclusion. WATERPLUG, powerful quick-setting hydraulic cement, is employed on large construction jobs for sealing steel-sheet piling, grouting of anchor bolts; also, to prevent possibility of vibration, such as high-powered ventilator fans, in tubes and tunnels, or other fine machinery and equipment, where slightest vibration would cause high maintenance cost.

THORITE, quick-set mortar, for patching and filling blistered concrete, where reinforcing rods are exposed and corroded, in heavy mass structures. High reinforced-concrete buildings, cornices, sills, lintels, belt courses, grain elevators, highway bridges, railroad bridges and underpasses, dams, reservoirs, water-treating tanks, filtration plants and cracks in masonry buildings of all types.

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Standard Dry Wall Products

NEW EAGLE, PENNSYLVANIA

Civil defense in the doldrums

THE ACTIONS of the Board of Direction of the American Society of Civil Engineers and of the National Society of Professional Engineers in urging local units of those two organizations to display more interest and leadership in civil defense planning are well-advised. In most places where civil defense activities were started they have bogged down, and in other places—far more numerous—they have never been started.

Congress must shoulder a major share of the blame. It turned down the President's first request for a half-billion dollar aid fund, and received his second, last week, without noticeable enthusiasm. Elsewhere, too, there is a slowness in coming to grips with the problem. Even, in New York State, where the best job of preparation to meet a bombing attack has been done, Gov. Dewey has had to make a special appeal against public lethargy. Only 100,000 instead of 1,000,000 persons have volunteered for service. But in New York, the state has set up machinery, appropriated $12.5 million for medical supplies, organized state departments and guided organization of municipal departments to cope with an emergency. That is the basic job that has too few counterparts elsewhere.

Engineers, many of them in public employ, can do a great deal to get city and state governments moving on civil defense. In that field the state professional societies and ASCE local sections have a fine opportunity for public service.

CPR 30 and construction equipment

STRONG OBJECTIONS to Ceiling Price Regulation 30 are being raised by construction equipment manufacturers on the ground that it will tend to throttle maximum production. Purchasers and users of construction equipment have a considerable stake in the outcome of the argument. With defense construction booming and the Army and Navy stocking up on machines, this is no time for a slow-down in equipment output.

The manufacturers contend that a much more workable plan than CPR 30—and one which would achieve the desired purpose of regulating equipment prices—would be for the industry to continue operating under the General Ceiling Price Regulation, which freezes prices at the level existing during the period Dec. 19, 1950 to Jan. 25, 1951. Two amendments to this general regulation are considered desirable. One would provide for a simple relief mechanism to aid the manufacturer whose frozen ceiling prices are too low for an equitable profit. The other—directed toward prices that appear to be excessive under the general order—would offer the manufacturer the opportunity to justify his prices before he is forced to reduce them.

The proposal has much to recommend it. Undoubtedly, CPR 30 is causing hardship. At a time when first emphasis should be on volume of production, it requires a prodigious amount of paper work to establish proof—largely academic—that selling prices are consistent with materials and labor costs.

But even if that task can be shouldered, CPR 30, in itself, contains several production-throttling provisions. It prohibits including the extra cost of conversion steel—whose use will probably be unavoidable—in calculating the selling price of the finished product. It makes no allowance for the extra cost of subcontracting, which the last war showed to be necessary if maximum production of equipment is to be achieved. And there are also the added—and unallowable—administrative costs caused by trying to do business under a multitude of government regulations, such as CPR 30 promises.

All this bids fair to hamper production of construction equipment at a time when we need it most. Congress and the OPS would do well to examine these complaints about CPR 30. They have a sincere and realistic ring.

New concepts for spillways

THE IDEAL SPILLWAY is one that wastes the least water during times of ordinary flow and yet will pass safely the largest flood that the stream can be expected to experience. If crest gates can be used, well and good, but where they are not practicable some means must be found to lengthen the crest of an uncontrolled overfall.

Two examples from North Africa of ingenious methods for obtaining adequate crest length are described on p 30 of this issue. One is an interesting development of the "morning-glory" spillway, which the French call a "marguerite". The second spillway, aptly labelled a "duckbill", consists of a group of U-shaped weirs set side by side with their axis at right angles to the axis of the dam.

The concept back of this latter spillway is unique, and appears to have possibilities for further development. The nearest U. S. approach to it—in designs developed to obtain a greater length of spillway crest than can be provided by a straight weir—is the saw-tooth pattern used to control the level of water in the tailrace below the Monroe power plant on the Loup River in Nebraska. But that form has limits that do not apply to the "duckbill" pattern. The latter could be used as a substitute for a series of crest gates on a gravity dam—which is essentially what was done in North Africa. But beyond this, when employed in combination with a slab-and-buttress dam or a multiple arch, it appears to have intriguing possibilities for designers willing to depart from traditional practices.

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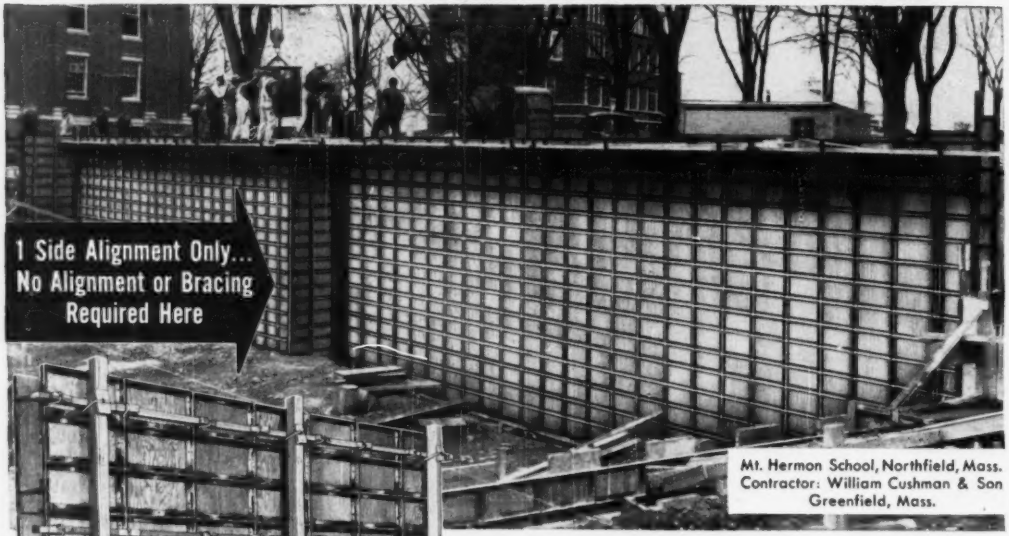

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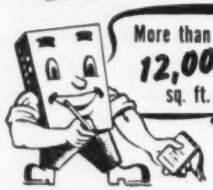

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ENGINEERING NEWS-RECORD

JUNE 28, 1951 VOL. 146 NO. 26

CMP becomes effective for construction industry

Regulation 6 provides for allotment of materials and construction authorization on a single form — Some construction may have to be halted temporarily

National Production Authority's issuance of CMP Regulation 6 (ENR June 7, p. 23), which became effective on June 21, and application methods for allotments of construction materials establish much more than mere operating procedures.

After weeks of wrangling, the controls agencies have come up with three basic policy decisions on construction.

First, allotments of controlled materials will accompany authorizations to proceed with building plans. Second, authorizations and allotments will be approved—or rejected—on a project-by-project basis. Finally, a lot of construction, including some already under way, will be halted—temporarily.

Regulation 6 does not require everyone planning a construction project to make application for CMP allotments of materials. The builder still may elect to take his chances on obtaining materials without allotments: But, with materials supply growing ever tighter, it appears that few, if any, will make such a choice.

For CMP-4C is to be used to request an allotment and/or a DO rating for other materials and equipment. It also may be used to apply for authorization to begin construction according to NPA Order M-4, for which use it replaces Form NAPAF-24.

Forms may be obtained at Department of Commerce field offices and applications should be filed as early as possible particularly where allotments of controlled materials are needed during the third or fourth quarters of 1951. The applicant must be the person who is, or is to be, the owner of the project—or his representative.

• **When to ask**—A builder is not required to ask for an allotment of controlled materials and a DO rating for construction if his total requirements per quarter do not exceed the following amounts for construction of industrial plants or facilities permitted by M-4: Steel, 25 tons (not to include more than 2½ tons of alloy steel); copper, 2,500 lb; aluminum, 500 lb.

For other types of construction permitted under M-4, the contractor need not apply if he does not exceed the following amounts per quarter: carbon steel, two tons; alloy steel, none; copper, 500 lb; aluminum, 100 lb.

Where a contractor already has received permission to commence construction, he may apply for an allotment of controlled materials on Form CMP-4C. This also goes for a builder who has started—or wishes to undertake—a type of construction for which NPA authorization is not required.

• **Allotment distribution**—From now on, when a construction schedule has been authorized by NPA, the prime contractor will receive an allotment for its completion. He, in turn, is expected to work out construction schedules for his subcontractors and make needed allotments to them out of the prime allotment.

Each contractor making or receiving allotments is required to keep an accurate record of such transactions and shall retain for two years all documents upon which he relies for proof of authorization. Allotments are not transferable unless permission is obtained in writing from NPA.

All projects requiring government approval will get the same kind of screening in Washington. No general category of construction will get "automatic approval." This is a strict rule which will be applied even to the building of military cantonments and expansion of plants producing defense materiel needed urgently.

• **Postponements, perhaps**—The controllers feel that shortages will become so severe that construction projects eventually will have to be placed on a first-things-first basis. That may mean, for example, postponement of completion of a new aircraft plant in order to get materials for housing at a development of the Atomic Energy Commission.

Should such a conflict over materials develop, Washington would decide the issue on the basis of which project is needed first on the basis of over-all defense needs.

Plant expansion is to receive similar screening. For example, construction of a new ball bearing producing plant would be approved only if additional bearings were needed for defense purposes. Later—if other types of new plant, say an electric generating station, were needed more urgently—con-

(Continued on page 24)

Military asks $6.5-billion construction

Last week Congress received the Defense Department's request for construction authorization. It was a whopping $6.5-billion program that is designed to help revitalize military installations both here and abroad.

One of the biggest phases of the construction program outlined—calculated to last about three years—is the building of a ring of air bases and radar-warning nets encircling Communist nations. That means bases in England, France, Italy, North Africa, Alaska, Japan, Okinawa, Guam and the Philippines.

Construction within the U. S. alone will hit $4 billion. More than $2 billion of this will be spent by the Air Force, presumably for extension of present runways and building of new bases. Navy will be spending another $890 million inside the U. S.—the biggest chunk going for naval air stations and facilities. Army construction at home is to exceed $1.2 billion.

This is an authorization request, the biggest since peak World War II days, and Defense Department officials have been working on the program for several months.

• **Some cuts**—The figure is less than that rumored earlier (ENR May 10, p. 23). The reason: Recreational facilities, officers' clubs, laundries, swimming pools and similar items were cut.

Only "essential requirements are included in the request and Defense Secretary George C. Marshall says that the huge program is to be financed over a two-year period. The fiscal 1952 budget would be required to pay for about two-thirds of the total, $4.5-billion.

(Continued on page 24)

Fabricators show small output gains; blame slow steel deliveries, controls

Most plants working below capacity, in spite of notable gains over 1950—CMP seen as both retarding and helpful factor

Output of steel fabricating plants has risen substantially in the past year, according to an ENR spot survey, but competition for steel in many cases is keeping plants from full capacity.

Nine fabricators in as many parts of the country responded to ENR's query, which follows a similar check on conditions in structural designing firms (ENR May 17, p 25).

The new survey was prompted by belief that the up-swing in industrial expansion would be bottlenecked at the fabricating level soon after it got into the design stage. Survey data seem to confirm this impression.

One Middle Atlantic firm with a fabricating capacity of 10,000 tons a month is turning out 3,000 tons a month this year—only 800 tons more than a year ago. The company's reasons are typical of those given by firms falling short of capacity production. The fabricator says, "We're not getting enough steel", and "poor productive labor is holding us back. We can use more skilled shopmen and skilled mechanics, and, of course, experienced engineers and draftsmen can find an opening with us."

• **The tally**—One of the nine companies questioned, a Far West firm, reports a hundred-percent increase from 250 tons per month output last year to 500 tons monthly this year. But that firm still is 100 tons a month short of capacity production.

A North Central firm has upped its output to 4,000 tons per month, its capacity level, from a 3,000 ton a month level of last year.

Production output for one South Atlantic firm with a fabricating capacity of 450 tons a month rose 50% from 200 tons last year to 300 tons in 1951. While another South Atlantic fabricator turning out more intricate steel work this year has less output—275 tons this year compared with 315 tons in 1950. His capacity mark is 350 tons a month.

A New England firm has a maximum fabricated output of 450 tons per month and is falling short because of slow steel deliveries.

One firm west of the Mississippi has managed to pull its output up from 1,500 tons per month last year to capacity level of 2,500 tons this year. Another fabricator in the same area is producing at the rate of 600 tons per month—the same level reached last year and still 900 tons a month short of full production.

• **The alphabet mesh**—The fabricators' attitude to government controls seesaws. While most firms are in agreement that DO's are the life-line to steel supply for necessary projects, some spokesmen feel the system does not tell the amount of steel delivery in time.

M-4 rulings, say five of the nine firms, will loosen up the steel supply for essential projects. The opinion is that essential projects already exceed mill supply and M-4 limitations will apportion steel where it is needed.

• **How they see it**—CMP stands like a dark spectre to all but two fabricating companies. Four leading firms see it as effecting no change in their ability to make steel commitments. Two spokesmen believe it will retard their commitments: mills are getting booked way ahead before CMP can be put into effect.

On the other side of the fence are two firms who feel CMP will improve their steel fabricating allocations after the first quarter of CMP's effectiveness.

Military asks . . .

(*Continued from page 23*)

Within the U. S., 44 states would benefit construction-wise, as would the District of Columbia. States in which the military will spend the largest amounts are: California, $536.7 million; Florida, $175 million; Georgia, $153.9 million; Maryland, $201.8 million; New Jersey, $147.4 million; North Carolina, $190.4 million; Ohio, $107.5 million; Pennsylvania, $146.4 million; Texas, $373.5 million; Virginia, $268.2 million; and Washington, $131.1 million.

• **Most for air**—The Air Force will be beneficiary of more than half of the construction. Largest of all the proposed projects is expansion at Olmstead Air Force Base, Middletown, Pa., which is to receive $74 million. Second largest, also AF, is for Lackland AFB, Texas, for $63.7 million.

Two largest Army requests are Fort Ord, Calif., and Fort Bragg, N. C.—for $63.5 million and $62.1 million respectively. Navy is slated to receive the lowest total. Its two largest items are for Naval Air Base, Shumaker, Ark., $45.6 million, and NAB, Little Creek, Va., $41.2 million.

CMP effective . .

(*Continued from page 23*)

struction of the ball bearing plant would be disallowed or postponed, if it competed for the same materials.

It all adds up to the halting of some construction now planned, and probably including some that has been started. In the latter case, NPA is likely to order postponement, rather than outright abandonment.

• **Slowdown, maybe**—Similarly, projects needed for defense that cannot be built for lack of materials will either be postponed or permitted to proceed at a slow rate until materials are in better supply. These may even include some jobs for which government assistance has been granted in the form of five-year amortization, loans and loan guarantees.

Permission to proceed on construction projects for petroleum and electric power facilities will not be handled on NPA's Form CMP-4C. Applicants for construction in the petroleum and gas industries must apply to the Petroleum Administration for Defense. Electric power utilities will apply to the Defense Electric Power Administration.

Construction and financing begin on $26-million job

Morrison-Knudsen Co., of Boise, Idaho, has started on the erection of temporary buildings and clearing of land on the Pacific Power & Light Co.'s Yale hydroelectric project on Lewis River in southwestern Washington. The initial step in financing the $26.4-million plant has been taken in the form of a loan for $13.5 million. The balance needed is to be obtained through sale of stock and bonds.

The Yale Dam, of rock-fill design, will rise 300 ft above the river bed. More than 3 million cu yd of rock are to be blasted off the top of a nearby hill to be dumped into the river for construction of the dam.

It will be 1,500 ft long at the crest and 1,200 ft thick at the base. Layers of impervious material will be incorporated to prevent seepage. The concrete spillway is to have a discharge capacity of 173,000 cfs.

Construction is to be rushed so that its 100,000-kw output can be utilized for defense production during the winter of 1952-1953.

Yale is immediately upstream from Pacific Power & Light's 100,000-kw Merwin plant. Plans call for an addition of two more generators at each of the plants some time in the future. Design and supervision on the project are under direction of Ebasco Services, Inc., New York.

$335-million construction VA hospitals in line for

The House last week passed and sent to the Senate a bill (H. R. 313) authorizing construction to provide 16,000 additional beds for veterans hospitals. At present price levels, it is estimated that the program will cost about $335 million.

It is expected that construction funds will be appropriated as soon as H. R. 313 becomes law. All the hospital additions were approved previously by President Truman but authorization was dropped in the fiscal 1950 budget.

If the expected appropriation materializes, 24 new Veterans Administration hospitals will be built and 14 existing hospitals expanded. The largest of the new VA hospitals scheduled will be located as follows: Charlotte, N. C., 500 beds; Chattanooga, 500 beds; Detroit, 500 beds; El Pasco, 500 beds; Gainsville, Fla., 1,000 beds; Toledo, Ohio, 1,000 beds; Houston, 1,000 beds; Memphis, 1,000 beds; New York City, 1,000 beds; Norman, Okla., 750 beds; and Salisbury, N. C., 921 beds.

The largest unit additions planned for existing facilities are: Philadelphia, 500 beds; Syracuse, 500 beds; Chicago, 500 beds; Cleveland, 500 beds; Oklahoma City, 500 beds; Pittsburgh, 450 beds; St. Louis, 500 beds.

As stipulated in the bill, VA also will make a survey of abnormal Army and Navy hospitals and include in its program those that can be utilized.

N. Y. state begins grants for town highways

Genesee County last week became the first New York State county to qualify for state aid for highways under provisions of a year-old state law.

Known as the Erwin Town Road Program, the law was passed April 20, 1950. It sets up a formula for state contribution to the actual cost of each mile of an approved project based in part on the assessed valuation of taxable property outside of incorporated villages. In effect, the formula means that the state would pay a larger share of road costs for counties with low assessed valuations than for "rich" counties.

Deadline for county applications for the aid was set as June 1, but mathematical computations have delayed final approval of many of the applications. Applications of 56 other upstate counties still await approval.

Genesee County's program includes work on 210.80 miles of town highway, with state aid to total $295,212.

ASTM fixes standards for mortar

Approves emergency procedures; OK's "sandwich" construction

Specifications for one of the most ancient of building materials—mortar for unit masonry—have been set up for the first time by the American Society for Testing Materials. This action was taken last week in Atlantic City, N. J., at the society's 54th annual meeting. At the same time, the society adopted standards for some of the most recently developed materials in sandwich constructions.

The society also reinstituted the procedure for emergency alternate provisions and emergency standards that was in effect during the course of World War II.

New records for attendance (total: 2275) and committee activities were set at the meeting, which heard Nathaniel Knowles, deputy administrator, Defense Production Administration, predict that shortages of most critical materials will ease off by the end of 1952.

Twenty-five technical sessions and 585 committee meetings were held. The technical sessions included symposiums on concrete structural sandwich construction, soil mechanics, fatigue, acoustical materials and weathering of paint.

The society elected Truman S Fuller, engineer in charge of Works Laboratory, General Electric Co., Schenectady, N. Y., president and Leslie C. Beard, Jr., assistant director, Socony–Vacuum Laboratories, New York, N. Y., vice president.

• **Five mortars covered**—The specification for mortar for unit masonry was adopted after 12 years of study by Subcommittee III of Committee C12. Set up as tentative, it covers five types of mortar in two alternative specifications:

Property specifications, in which the acceptability of the mortar is based on the properties of the ingredients and the properties (water retention and compressive strength) of samples of the mortar mixed and tested in the laboratory.

Proportion specifications in which the acceptability of the mortar is based on the properties of the ingredients and the proportions of these ingredients.

Contract specifications must provide for admixtures or mortar colors, if these are to be used. Anti-freeze substances are not permitted.

• **New test standards**—Approval also was given to standards for the newest types of building materials—structural sandwich constructions. Set up as tentative, the specifications cover definitions of terms and methods of test for compressive properties of sandwich constructions, water absorption of core materials, density of core materials and shear in flat-wise planes.

Committee D-18 on Soils for Engineering Purposes reported progress in the development of three important standards for methods of test—Bearing Capacity for Soil for Static Load on Spread Footings, Repetitive Static Load Tests for the Evaluation and Design of Airport and Highway Pavements, and Non-repetitive Static-Load Tests for the Evaluation and Design of Airport and Highway Pavements. Of the plate-loading type, these tests are expected to be submitted in the near future for consideration by the society for possible use as tentative standards.

Discussion by Committee D-18 of other proposed test standards revealed much difference of opinion as to the applicability and utility of Shelby-tube sampling of soils. The committee plans to make more studies of this technique in light of the various attitudes.

• **Emergency alternatives**—In view of growing restrictions in use of critical materials, and with knowledge that some ASTM committees already are faced with the necessity of emergency specifications, the society decided to reinstitute its former procedure for emergency alternate provisions and emergency standards.

Emergency alternate provisions will be identified by the letters EA preceding the serial designation of the specification with which they are issued. The date of issue also will be given. When a revision is made, a lower case letter will be added to the designation and a new date of issue shown. For example, EA–B32a; Issued Jan. 1, 1952; (Superseding Issue of Oct. 15, 1951).

Emergency standards will be designated by ES followed by a number. The date of issue also will be given. When a revision is made, a lower case letter will be added and a new date of issue shown. For example, ES21b; Issued July 1, 1952; (Superseding Issue of Jan. 1, 1951).

Some changes were made in the former wartime procedure to tighten requirements for emergency action in the technical committees. To avoid action by a subgroup of a subcommittee without reference to a parent body, the new procedure makes no provision for subgroup action. Two-third letter-ballot approval of the larger groups is now required. Annual review of all emergency provisions and standards is necessary for these to remain in force.

Professional engineers hear of needs and responsibilities at NSPE meeting

National unity of engineers, civilian defense aid, manpower needs and collective bargaining of engineers are 17th-session highlights

The professional engineer today has more responsibilities and greater opportunities in rendering service at both community and national levels than ever before. These points were stressed at the 17th annual convention of the National Society of Professional Engineers, held in Minneapolis June 14-16.

• **Civil defense aid** – Resolutions adopted near the close of the three-day meeting stressed the need for members of NSPE to offer their continued support and services to the Federal Civilian Defense Administration, and to accept their responsibilities in the fulfillment of this program. This same point was made earlier by Perry T. Ford, director, engineering services of the technical section of FCDA.

Engineering ingenuity will be taxed to its utmost to cope with pre-attack and post-attack problems as well as the immediate problems during an attack by the enemy, declared Ford.

The NSPE also went on record as urging its member state societies to proffer their services and support—as a professional body of qualified engineers—to their respective state legislatures in the preparation and enactment of effective legislation to protect highways from damage by overloaded vehicles. In this connection, stated the resolution, they should work for the adoption of AASHO standard sizes and weights of trucks in those states which now legally sanction truck weights and sizes in excess of those standards.

• **National unity**—Several convention delegates reported that their member state societies of NSPE wholeheartedly advocated the adoption of Plan D for national unity of engineers—one of four plans evolved by an exploratory group representing 15 engineering societies (ENR June 14, p 28).

• **Collective bargaining**—Considerable discussion centered on the stand taken by the NSPE at its annual meeting in Boston last year against collective bargaining by organizations of professional engineers (ENR, June 22, 1950, p. 25, Aug. 10, p 29, Aug. 17 p 23). While such procedure is still looked upon with disfavor by the association, consensus of the group was that NSPE's statement of policy in condemning collective bargaining needs to be studied and carefully reworded to make it more coherent, and more easily understood.

• **Engineering manpower** – A better balance of our technical and defense manpower requirements is needed in view of the threatened shortage of engineers. This was the opinion of Paul H. Robbins, executive director of NSPE. The nation is running short of engineers and present draft policies are aggravating the situation.

About 33,000 new engineering graduates are needed each year, said Robbins. On the basis of present college enrollment, we can expect to get 38,000 engineering graduates this year, but future prospects are not so good. Next year's graduates are estimated at 26,000, followed by 21,000 in 1953 and only 17,000 in 1954.

• **St. Lawrence seaway**—Pros and cons of the controversial St. Lawrence seaway were discussed in detail by a four-man panel at one of the technical sessions. H. C. Rose, counsel for the M. A. Hanna Co., Cleveland, Ohio, and J. H. Barnes, president, Intercontinental Development Co., Duluth—both of whom spoke in favor of the project—pointed out that it would give the Midwest an outlet the the Atlantic.

Opponents of the project—W. J. Kelly, vice-president, Association of American Railroads, and L. A. Schwartz, general manager, New Orleans Traffic & Transportation Bureau—view the proposed seaway as unjustifiably expensive and impractical. They also contended that it would not be self-liquidating.

BPR receives authority over all highway work

Construction and maintenance of rural and urban highways, streets, highway bridges and tunnels, toll road facilities and highway equipment repair shops henceforth will be controlled by the Bureau of Roads. Commerce Secretary Sawyer last week delegated this authority under NPA Order M-4.

Application for permission to begin highway construction now should be directed to the district engineer of BPR for the state in which the project is located. When an agency other than the state highway department is in charge of a job, the application should be channeled through the state highway department for recommendations before being presented to BPR. Applications are to be prepared on forms available from Dept. of Commerce.

BPR points out that its authority extends to all construction, maintenance and operation of the highways—including traffic control.

The Defense Transportation Administration's authority relates to the regulation of public carriers operating over the highways, to passenger depots, warehouses and other terminal or wayside facilities used by public carriers.

On June 8, DTA received authority from the National Production Authority to process applications under M-4 for new construction in domestic transportation by railways, streets, highways, and inland waterways.

In directing its division and district engineers to receive and act upon applications, BPR issued a list of instructions in three categories: Section one, general criteria for construction projects; section two, specific criteria for permits to construct highway projects; and three, action on special cases.

BORDER HOTEL—El Rancho Grande Hotel, Brownsville, Tex., is of one-story construction and soil conditions dictated floating floor and foundation. Its buildings form a quadrangle over a 10-acre, landscaped tract, in the town's best residential area. Walls consist of 4-in faced red brick outside, with 2-in air space and 4-in lightweight concrete block for inside walls. Sixty guest rooms, swimming pool, sun decks and service rooms have cost about $750,000; future expansion will accommodate up to 133 guests. Design emphasizes outdoor living.

Palisades Dam approved; Davis is fourth largest

Construction of Palisades Dam and power plant, estimated to cost $76.6 million, has been approved by Interior Secretary Oscar L. Chapman as a defense project. The site is on the Snake River at Calamity Point, in Eastern Idaho.

Needed urgently to meet soaring electric power demands in the Pacific Northwest, Palisades also will provide irrigation, flood control, recreation and fish and wildlife benefits (ENR July 22, 1948, p. 42). The reservoir will have a storage capacity of 1.2 million acre-ft. The power plant will have an installed capacity of 112,500 kw.

• **No. 5 for Davis**—Davis Dam hydroelectric installation on the lower Colorado (ENR Jan. 11, p. 24) has become the country's fourth largest hydroelectric development with the putting into service of a fifth generating unit, according to the Bureau of Reclamation. Each generator produces 45,000 kw.

Construction under the prime contract was begun in March, 1946, and completed last December. Davis is 67 miles downstream from the Hoover power plant and 88 miles upstream from Parker power plant. The three installations send electrical energy over some 1,500 miles of transmission lines to load centers in Arizona, southern California and southern Nevada.

Honolulu investigates sewer-main failure

Still-unexplained damage to a newly laid 5-ft dia sewer-main crossing Honolulu harbor is estimated to cost nearly $100,000 to repair.

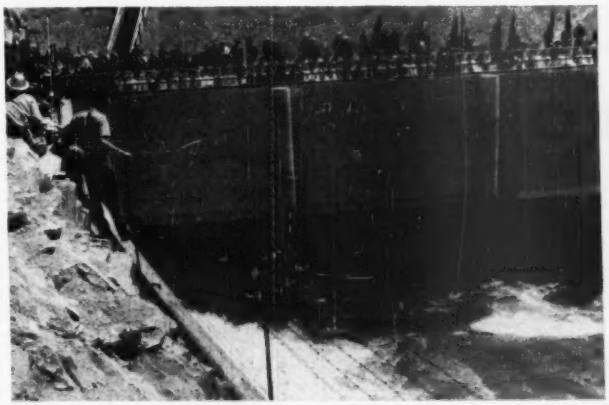
Efforts are being made between the city and Hawaiian Dredging Co., contractor on the pipe-laying job, to share the repair cost without resorting to court litigation.

The damage occurred in January, just before the city was going to accept the 5-ft dia force main built under the Honolulu harbor entrance channel. The main was to deliver half of Honolulu's sewage to a 6½-ft dia, 3,400-ft long, outfall for disposal at sea. (For news of the outfall, see ENR May 17, p 32)

Fourteen of the 16-ft long sections of the pipe were moved from distances ranging from a few inches to 35 ft. Harrison P. Eddy of the Boston firm of Metcalf & Eddy, engineers for the system, flew to Honolulu in April but was unable to ascribe any single definite cause for the damage, although many causes have already been suggested.

Coulee pumping gets under way

PHASE II—First step in the second phase of Coulee Dam's service to the water-hungry West started officially when the first of 12 pumps began lifting water from the reservoir behind the dam up 280 ft to the ice-age channel of the river (upper center). From storage here, water will flow into the million-acre Columbia Basin irrigation project. Pumps (see also cover) were designed and built by Pelton Water Wheel Co., and by Byron Jackson Co. Six pumps now are being built. Two units, including the initial installation, employ General Electric motors. Four pumps will be powered by Westinghouse motors. (Wide World photo)



COMES OUT HERE—Shoved uphill at the rate of 720,000 gpm, Columbia River water pours into the Grand Coulee itself, for storage and distribution to irrigation uses. Sufficient storage will be available to deliver first water to the irrigation project by late 1952. Work on the pumping plant got under way late in 1948 (ENR Nov. 11, 1948, p. 80) on what was to be the world's largest pumping structure (Fig. 1 on upper photo). (U. S. Bureau of Reclamation photo)

West Palm Beach storm drains leaked badly through faulty joints.

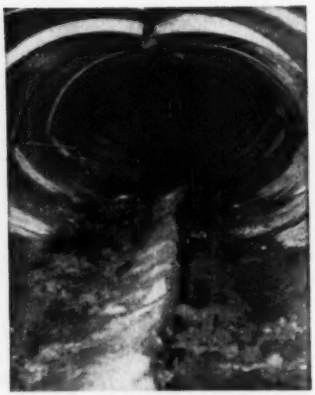
1 BREAKS developed, sections crumbled.

2 ROOTS GREW to widen cracks.

3 SAND washed into drains leaving . . .

4 VOIDS like this under city streets.

5 PAVEMENT cracked, roadway sagged.



6 BUT ONLY a small bit was past repair.

Leaky sewers salvaged—saving pocketed

STORM SEWERS built in the boom days of 1925-26 in West Palm Beach, Fla., are being rebuilt now—in place.

A method of lining pipe with cement mortar, which has wide acceptance as a corrosion preventative for metal pipes, is being used to repair structurally and make watertight some badly broken and sand-filled drains.

The problem is one of removing sand from the inside of pipes (from 30-in. to 60-in. dia) while water boils in under pressure through collapsed and crumbled joints; then cleaning, caulking and grouting joints to stop leaks; and finally putting a strong mortar lining inside the pipe, which is wire-mesh reinforced in some places.

Pipe under 36-in. dia is of terra cotta sections in lengths varying from 3 to 4 ft. That with 36-in. dia and larger is of terra cotta segmental tile construction. There are also several hundred feet of corrugated steel pipe of 44 to 48-in. dia.

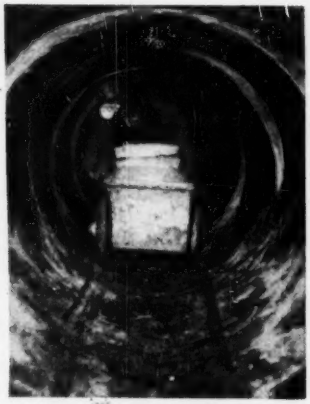
• **Extent of damage**—Accompanying photos best tell the serious condition of the 25-year-old drains before rehabilitation began. So much sand had infiltrated into the sewers through their leaking joints that voids were left above them, and eventually the street pavement bridging these voids cracked and collapsed.

West Palm Beach stood to suffer still more expensive damage as the faulty storm drains continued to undermine streets while further clogging themselves toward destruction. It was a dismal prospect; but so was the cost of complete replacement of the system.

• **Cheaper to rebuild**—Repair was proposed by Centriline Corporation, Raymond Concrete Pile Co. subsidiary, specialists at mortar-lining of pipe. Their methods have been used in pipe sizes 4 to 144 in., but never before on a job of this nature.

The application was considered experimental as Centriline went to work on one mile of drain last year. Results prompted a contract for 4,800

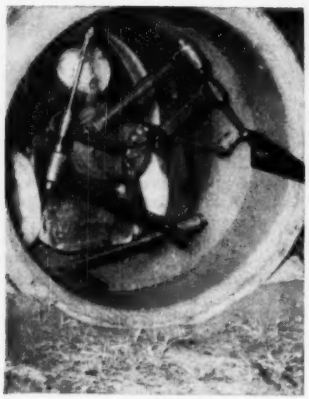
Repair method chosen is a new use for approved pipe lining technique.



7 SAND was removed from pipes.

8 JOINTS were then sealed by caulking.

9 HOLES were cut for grouting. Then . . .



10 LINING machine was put to work.

11 IN PLACES, lining was reinforced.

12 REBUILT wall (right) is watertight.

ft more, started late last year and just now completed. It appears probable that West Palm Beach will go ahead with complete rehabilitation of its system—another 15,000 ft.

Contract cost was $5.27 per lf for lining only. All other charges aggregated $5.16 per lf. Estimates for replacing the pipe that was relined in place indicated new lines would have cost several times the price of rehabilitation.

• **How it is done**—The first step in rebuilding is to clean out a length of sewer. This takes a man with hand tools and a buggy of some sort for hauling out debris (which included a live alligator some 4 ft long in one section).

Next, leaks get attention. This means preparing and caulking cracks and joints. In some places, preparation has involved cutting roots that had grown in through cracks. Of course, the work does not proceed through the rainy season; even so, caulking is a continual struggle against outside water pressure. Sections worked on have to be bulkheaded and pumped dry.

Where necessary to stop leaks, grout is injected through holes cut in the pipe invert. And under-street voids above the pipe can be filled with sand.

• **Lining process**—With pipe cleaned out and leaks stopped, lining can proceed. A Centriline machine, adjustable to the varying diameters, has been used on the job.

Essentially, the machine is an electrically driven, self propelled device into which mortar (portland cement and sand in equal parts) is fed. A rotating head centrifugally throws the mortar against the pipe wall to form a layer of thickness variable by controlled forward speed of the machine. Three rotating trowels on spring-loaded arms follow along to smooth the lining. Power and mortar are fed from generating and mixing plants on the street above.

On some lengths of especially weak 60-in. dia segmental tile sections, 4x4-in. steel wire mesh was placed, secured with a first coat of mortar, then covered with a second coat. Throughout the work a 1-in. thickness of mortar has been placed in two layers—a seal coat and a finish coat.

Only 400 ft of badly broken 48-in. pipe has had to be removed and replaced, so far. All other deteriorated lengths have been salvaged.

C. S. Erskine is Centriline's superintendent; Keith Chinn is city manager of West Palm Beach.

Capacities of uncontrolled spillways increased by lengthening the crests

NEW APPROACHES to the problem of discharging large quantities of water through limited sections of dams were brought to the attention of the delegates to the Congress on Large Dams held in India last winter. At two dams, novel and somewhat similar methods for increasing the length of crest on an overfall spillway were used, and at the third, a self-priming siphon is employed.

Most recent of these spillways is one that marks an advance beyond the well-known "morning-glory" or funnel-type. It is being built to control the reservoir level at a new dam inland from the city of Oran in Algeria, North Africa. Called a "marguerite spillway" because of the resemblance of its outline to the common daisy or marguerite, this new type of overflow weir has a much greater length of spillway lip than can be obtained with a morning-glory of similar outside dimensions.

The dam, called "Le Barrage de L'Oued Sarno," consists of an earth fill about 800 ft long and 95 ft high across the valley of the Sarno River. Because the region is subject to earthquakes, it was decided to make the discharge facilities independent of the dam. This resulted (1) in placing the outlet gates in the base of a tower built above the inlet to the river-diversion tunnel driven through the right bank, and (2) in adopting a morning-glory type of spillway discharging into the same tunnel.

As a precautionary measure, to make certain that the main dam will not be overtopped by an abnormal flood, a spillway of the fuse-plug type also is being built in a side valley.

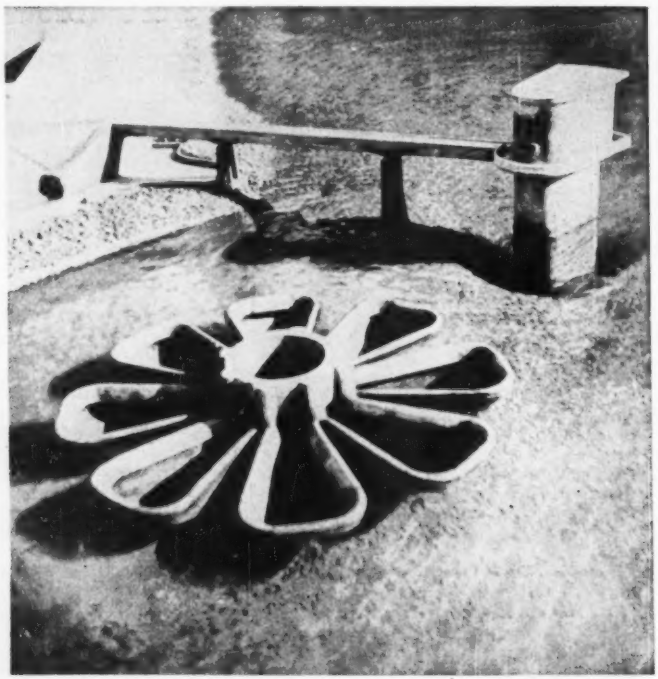


FIG. 1—MARGUERITE SPILLWAY, shown here as a laboratory model of a new dam, which is being built on the Sarno River in North Africa. This petaled form gives a much greater rate of discharge for each unit of rise in water level than can be obtained with a "morning-glory" spillway of the same outside diameter.

Conservation of water was the chief reason for adopting the petal form of spillway lip, as much more water can be discharged with each inch of rise in reservoir surface than would be possible with a simple circular weir of the same outside diameter, in this case about 100 ft (30 m). The petals of this spillway will have a total crest length of about 740 ft.

Shown in the accompanying illustration is the model of the spillway that was used to determine the correct hydraulic characteristics for the finished structure, such as the profile of the sill, correct form for the channels leading to the central shaft and the diameter of that shaft.

Those model studies indicate that a spillway with those dimensions will discharge 1,640 cfs under a depth of 3.7 ft over the sill, and that a throat diameter of 19.6 ft would carry that amount of water.

This "marguerite" spillway now being built at the Sarno Dam appears to be an evolution of the spillway form finally adopted for one of the three dams forming a storage reservoir for the Beni-Bahdel power and irrigation project on the Tafna River, somewhat farther west in Algeria, which was completed about ten years ago.

• **Duck-bill spillway**—Because adequate length of free-overfall spillway could not be provided in the main dam of the Beni-Bahdel project within the limits of the river valley, the novel plan of gaining spillway length by building a series of "duck-bills" perpendicular to the axis of the dam was adopted upon the recommendation of two eminent French engineers—Freyssinet and Stucky.

The spillway has a length of 362 ft along the axis of the dam. Extending upstream are twenty channels or "duck-bills," each about 100 ft long and 12 ft wide, which are spaced at 18-ft centers. The bottom of each channel slopes from zero at the upstream end to a depth of 16 ft at the axis of the dam.

The channels are of reinforced concrete, supported by the dam at their downstream end and by a concrete column about 40 ft from the upstream end. Each is lined with precast blocks of dense concrete to check erosion.

With this arrangement it was possible to obtain a discharge lip of 4,200

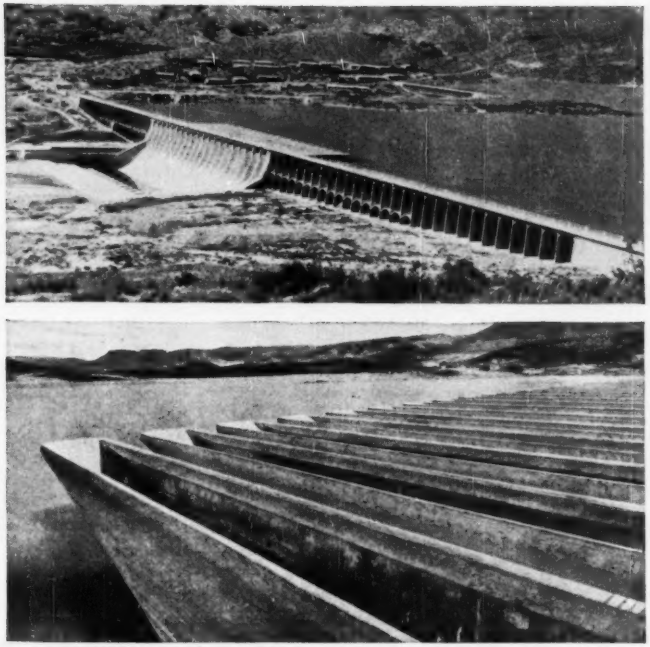


FIG. 2—DUCKBILL SPILLWAYS on the Beni-Bahdel Dam in North Africa were forerunners of the marguerite spillway. Their use on the Beni-Bahdel Dam increased the spillway crest length by nearly 4,000 ft.

ft in a channel width of only 363 ft. Thus a discharge of 1,000 cu meters (3,500 cfs) can be obtained with a depth of only half a meter (19 in.) over the crest.

• **Volute siphon spillways**—Another recent modification of the funnel-type spillway is found at Hirebhasgar Dam in India, which serves the new Mahatma Gandhi hydro station at Jog Falls in Mysore State. These unique siphon spillways were among the engineering projects visited by delegates to the Congress on Large Dams last winter. They are based on designs developed by Sir V. Ganesh Iyer, former chief engineer for Mysore State, for the Marconahalli Dam. This brief description is based on a paper presented at the congress by N. S. Govinda Rao.

The eleven siphons at Hirebhasgar Dam are 18 ft in diameter and operate through a fall of 58 ft. Principal details are shown diagrammatically in Fig. 3, and a photograph of the dome of one siphon is reproduced as Fig. 4.

The lip of the funnel is set at the level near which it is desired to maintain the pool back of the dam. As water rises above that level it submerges the "deprimers" on the dome and also begins to spill down the funnel. Blades or volutes on the funnel lip give the water a spiral direction that tends to fill the barrel throat with spray. This creates a partial vacuum in the dome, increasing the flow, which in turn increases the vacuum until the siphon is primed and flowing at full capacity. Flow continues until the water surface falls below the ends of the deprimer passages, breaking the vacuum.

This chain reaction is started by a difference of only 1¼ ft between the inside and outside water seal. At the Hirebhasgar siphons it starts within ten minutes of the start of priming. Tests have shown that the efficiency of the priming is governed to a large extent by the form of the volutes on the funnel lip.

This method is so efficient, according to Mr. Rao, that a depth of water of 19 ft above the crest of a normal overfall spillway would be required to obtain the same rate of discharge that is obtained at a depth of only 1½ ft above the funnel lips of the siphons at Hirebhasgar.

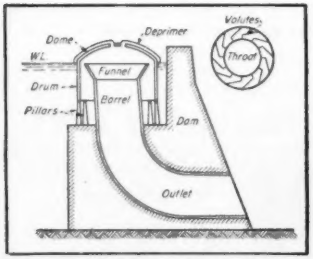


FIG. 3—SIPHON SPILLWAYS on the Hirebhasgar Dam in India have the elements shown here in diagrammatic form. They are self-priming.

FIG. 4—CONCRETE DOME on one of the siphon spillways at Hirebhasgar Dam. The raised areas at the quarter points of the top are the deprimers shown in Fig. 3.

Grave handicap: ground-water unknowns

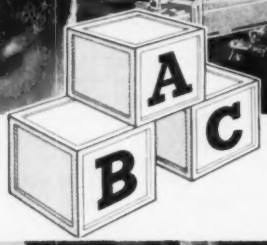
There is still a lot to be learned about ground-water reserves in the Missour Basin states, according to Interior Secretary Oscar L. Chapman.

About 95% of the communities, many acres of irrigated land, nearly all rural dwellings and considerable industry depend on pumped ground water for supply. It's a lot of water: some 2,430 mgd in the 10 states wholly or partly within the basin.

Sub-surface water supply and demand, and the power supply and demand to drive pumps are unknowns that could handicap basinwide conservation planning, says Mr. Chapman. Quantitative data are sought in present U. S. Geological Survey studies.

Investigations are to include the possibilities of using ground water reservoirs for storage—draining them during fall and winter to permit easy, rapid refilling by infiltration during spring's high runoff.

To date, ground-water development in the Basin States has not been so extensive as to cause demand for rigid control. But as population and new uses step up the removal rate, it is felt by the Interior Department that individual states will have to act to protect resources and maintain proper balance between surface and sub-surface supplies.



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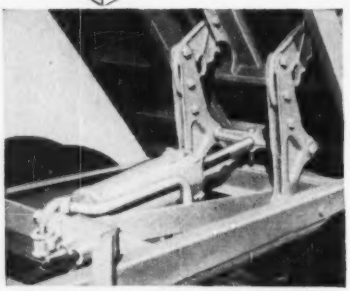

There's nothing mysterious or even complicated about HOW and WHY Galion's exclusive Fulcrumatic hoist ACTION develops more load lifting ability and a smoother, steadier dumping cycle than a conventional hoist of equal capacity rating.

. . . It's just a matter of changing the hydraulic pump ability into an upward lifting force so applied through simple linkages, that the pump delivers a uniform effort throughout the dumping cycle. The result is longer hoist, body and chassis life . . . better dumping performance.

It takes the "tough, heavy-going" jobs to bring out the operating ability and construction stamina of dump truck equipment.

. . . And it is on these "tough" jobs where Galion hydraulic hoists and allsteel dump bodies "stand out" . . . for the "tough" ones quickly prove the all around advantages of Galion's famous A B C combination . . . the combination where Galion's exclusive fulcrumatic hoist *ACTION*, unites with perfect lifting *BALANCE* and time-proved quality *CONSTRUCTION*.

That's the winning combination for long economical performance . . . and for lengthening chassis life as well.

Ask your truck dealer for a demonstration on *your job!*

MAKES A WHALE OF A DIFFERENCE THE "WEIGH" IT LIFTS

GALION

ALLSTEEL BODY COMPANY

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English firm builds shell concrete domes

THE NINE spherical-section domes which cap the new factory of England's Brynmawr Rubber, Ltd., at Brynmawr, S. Wales cover 77,000 sq ft of floor space (with only four interior supports) and are each said to be one of the world's largest of this type of construction. They were built without the use of hard-to-get structural steel.

The whole factory building, in fact, contains no structural steel. Its concrete walls support the outer corners of the domes. Interior corners are supported on concrete columns.

Here are some of the vital statistics:

Domes measure 82 ft by 63 ft 9 in.

Sixteen circular openings 5 ft 6 in. in diameter penetrate each dome for artificial and natural lighting—eight, for daylighting, have ¾-in. thick glass on the outside.

Thickness of the shell is 3 in. Domes rest on bronze bearing plates at the four corners. These bearings provide for expansion up to ⅜ in.

Light aluminum mullions are used on truncated dome edges which are glazed on all four sides.

In a sense, the architects have squared the circle by supporting the domes on tied arches, slicing much of what might have been concrete away at the base to let in light.

External surfaces of the roof are covered with tar in which white granite chips are embedded.

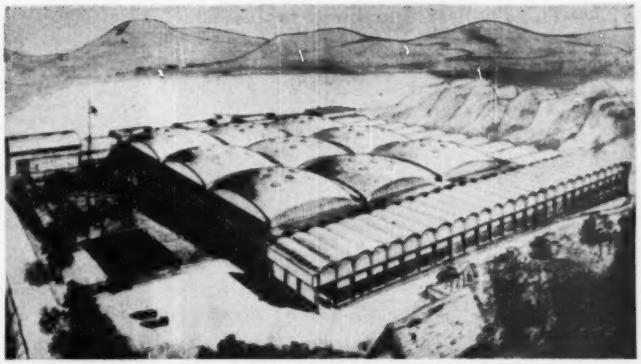
Concrete tie beams run the length and width of the building between columns.

Since the domes are large area structures, snow loading may be considerable. Special care has been taken in the design of roof drainage to provide adequate run-off pipes. These carry the water down through the working area into the basement.

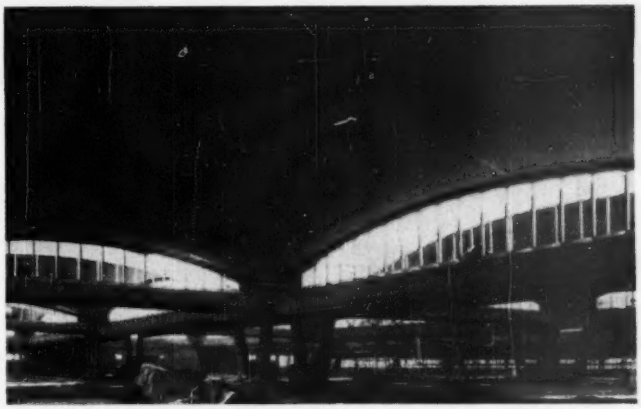
The main working area is supported from piles by mushroom columns of reinforced concrete. These are located in the basement, where all the services, steam, water, compressed air, hydraulic pressure, drainage and other auxiliary supplies and services are run through the floor.

In the office section of the building, radiant heating is piped through the floor in ¼ in. steel tubing. Steam pressure is 20 psi. Control valves are located at convenient points so that some sections of the floor can be cut off from the system.

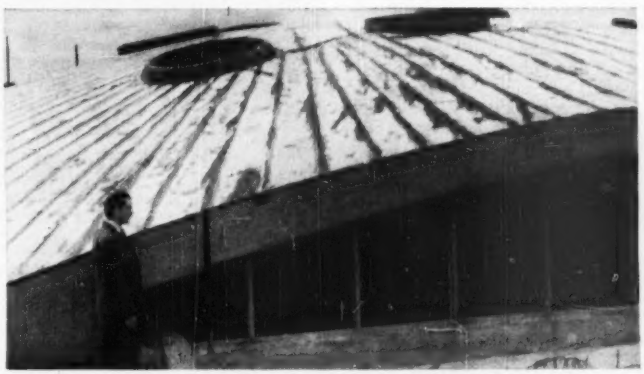
Architects for the factory at Brynmawr were Enfield Cables, Ltd. and the Architect Co-operative Partnership of London. Structural engineers on the job were Ove N. Arup & Partners of London.



LIKE SHEETS IN A GALE—nine of the world's largest domes of shell concrete billow above the 77,000 sq ft of floor space that constitutes the new factory of Brynmawr Rubber Limited in S. Wales.



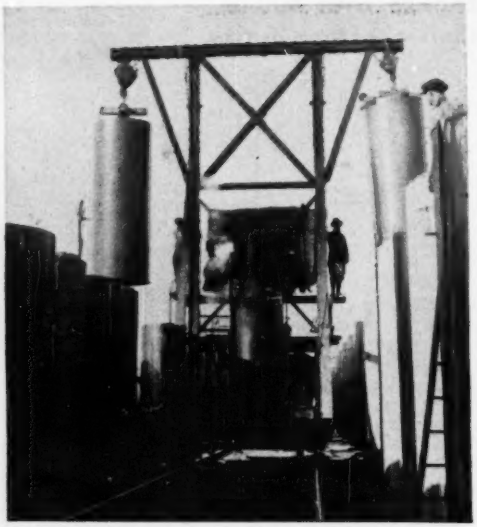
MODERN FACTORY INTERIOR shows domes' circular orifices which let in daylight, or mount electric lighting. Lower segments of the domes are cut away to provide window space. Beams running the length and width of the building tie domes' arching action and carry intervening flat roofs.



STRUCTURALLY LIGHT IN WEIGHT, Brynmawrs' nine domes are only 3 in. thick. Using reinforcing steel mesh, they are the English answer to scarce steel. Roofs of this type are probably too costly in the United States because of the quantities of manpower needed to put them up. In material scarcity, this picture may change.

1923—Tulsa's first Spavinaw project

MULE TEAM helped backfill while locomotive crane on temporary siding hoisted pipe from railroad (right) to trench.



AN UNGAINLY GANTRY handled materials and finished pipe in the production plant built for the project.

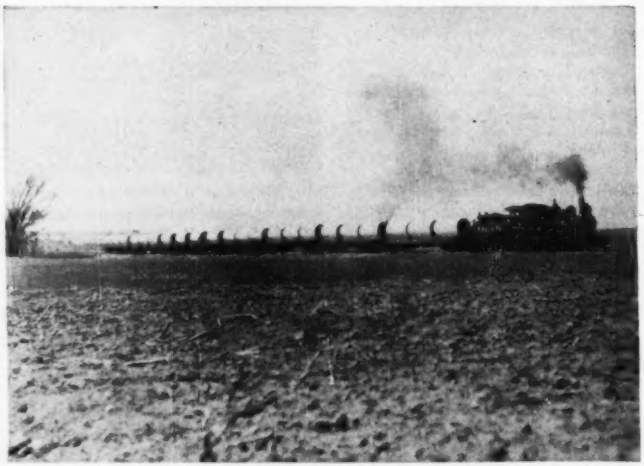
A tale of two pipelines—

1923—MULE TEAMS and steam engines did the hoisting and hauling when Tulsa first reached out for pure Spavinaw Creek water.

Making and laying concrete pressure pipe to bring water nearly 60 miles to Tulsa was then a construction job with many complications the industry has since outgrown.

Existing roads were in poor condition, and access to the line was available in only a few places. It was necessary for the contractor to build a railroad line the full length of the job and to deliver the pipe by flatcar. Frequent flash floods were a constant menace in those days (before river control projects in the vicinity); track washouts were numerous and costly.

At the construction site, pipe sections were lifted from flatcars by a steam locomotive crane riding on temporary tracks between the delivery rail line and the trench. When this crane had lowered and set pipe in place, mule-drawn scrapers would backfill.



PIPE TRAIN had to haul finished product to site on contractor's own railroad.

• **Camp set-up necessary**—Pipe production plant was set up near Verdigris—about one-third of the way to the water source from Tulsa. The country was largely uninhabited then, and inaccessibility of the plant made it necessary for the contractor to set up a complete camp and commissary to accommodate workers on the job.

Timber-framed, steam-powered gantries rode the tracks of the production yard, doing all the necessary lifting. And completed pipe lengths were set to store on what today would be a prohibitively expensive elevated timber-skid structure. Even in those days it was costly, and a constant drain on maintenance dollars as settling timbers needed replacements or repair.

It was basically the same pipe then as now, but some details and most production methods were different. Reinforcing cages of hand welded hoops were hand-fabricated on long-outmoded jigs; spiraling reinforcing cages of continuous hot rolled steel is a machine process today. A lead and steel joint was used instead of today's rubber and steel.

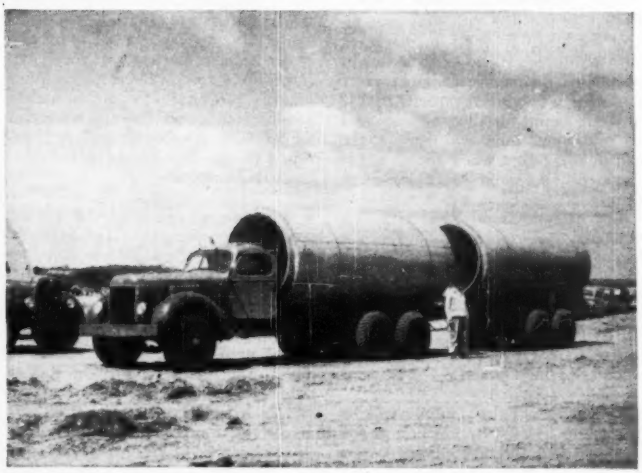
Sections of the old line were assem-

1951—Tulsa's second Spavinaw project

MASS PRODUCTION of pipe was facilitated by fast, maneuverable equipment on the more recent Spavinaw job.

HORSEPOWER GALORE in a present-day pipe laying spread had trenching, placing, backfilling work fully mechanized.

parallel but 28 years apart



CHEAPER HAUL was had this time. Roads were better, and trucks were faster.

bled by placing a fiber-filled lead gasket within the bell of the pipe already in place. The spigot end of the pipe to be laid was then set firmly into the bell, and the lead gasket was caulked from within the pipe for a watertight seal. Today a rubber gasket goes in an annular groove in the spigot. When the spigot is pushed home into the bell, the rubber compresses to form a watertight seal, in a flexible joint.

Tulsa's first tapping of spring-fed Spavinaw Creek in east Oklahoma's Ozarks called for construction of a dam across its lower end and laying of 27¼ mi of 60-in. pipe, 24¾ mi of 54-in. to supply up to 25 mgd for a population which, during the Twenties zoomed from 72,000 to 141,000.

Cost of the first Spavinaw project was covered by an $8,000,000 bond issue voted in 1922 and '24. Walbridge Aldinger Co. was general contractor; Lock Joint Pipe Co. had the subcontract for furnishing and laying the pipe.

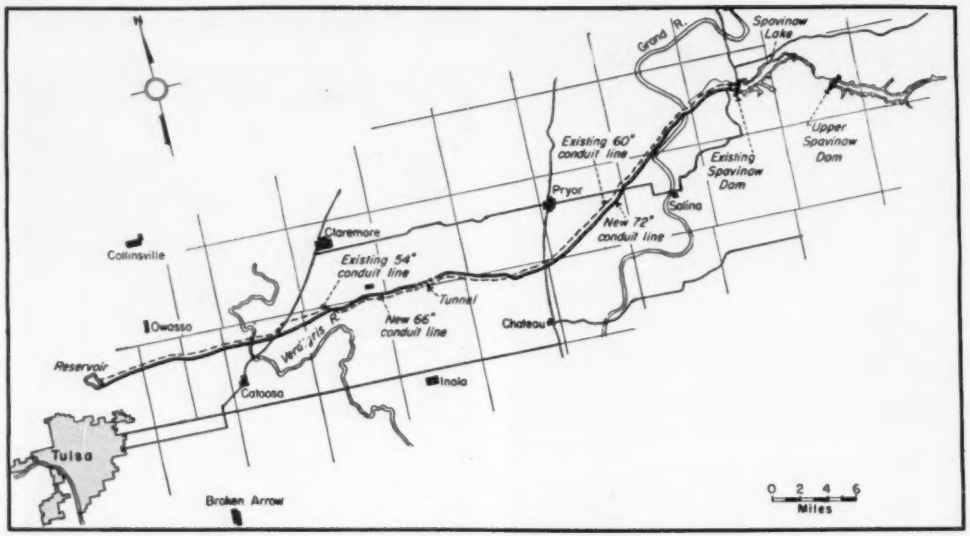
1951—There were no "gees," no "haws" to be heard this time as Tulsa went back to Spavinaw Creek for more water for its growing industrial and domestic demand. The bulldozer had supplanted the mule.

Armed with twice the money (near $16,000,000 this time) plus the method and equipment advances of more than two-score years, the "Oil Capital" struck out again along the same route to pipe in more water from Spavinaw.

This time internal combustion—not steam—energized the much more mobile construction equipment that made, hauled and laid the pipe. One crew, laying 66-in. pipe, used a backhoe to do the whole operation—both to excavate the trench and place the pipe. Elsewhere, backhoes dug ahead while cranes followed along, laying pipe.

In place of the two mules of yesteryear, there were 50- and 100-horsepower driving the tractor-mounted bulldozers that cleaned off the right of way ahead of the work, backfilled trenches in the rear.

Rate of work reached a record of



STRETCHING OUT FOR WATER once again along the same route to the same source, Tulsa builds a second dam to form Upper Spavinaw Lake, increasing its total supply to 63 mgd. Water is distributed from reservoir near city.

100 sections of 66-in. pipe, 16 ft long, laid in one 10-hr day.

• **Easier hauling**—High-speed, maneuverable flatbed trucks towing 8-wheel trailers, hauled pipe sections—one on the truck, another on the trailer—from the pipe-manufacturing plant, set up at Pryor, Okla., about midway along the construction line.

In the plant, where 53 miles of pipe ($7,500,000 worth) in sizes 84 in., 72 in., 66 in. and 60 in. in dia were produced, modern mass production methods had sped up a process which is basically the same as in '23. This time diesel locomotive cranes handled the forms, the reinforcing and the concrete (120,000 cu yd of concrete and 30,000 tons of reinforcing steel went into pipe manufactured for this job).

Production started in February, 1949. When full production was reached the following month, there were 24 72-in., 20 66-in. and one 60-in. sections produced per day. Later, four 84-in. sections also were produced daily. With but 10 days lost due to bad weather, the pipe manufacture wound up Sept. 27, 1950.

• **Loading trick**—Pipes had their initial cure on casting slabs, cured further in horizontal storage. Loading onto the flatbed trucks and trailers for transport to the job was simplified by excavation of a depressed trucking road alongside the yarding area. This was designed to bring truck beds down to ground level so that pipe could be rolled right aboard. At the construction site the crawler cranes lifted pipe from trucks.

Installation of pipe—begun in April, 1949—was finished early this year except for 4,716 ft of 84-in. dia being laid across the Grand River—to be completed this summer. Twin 84-in. lines with a combined capacity of 150 mgd are being installed here so that no additional lines will have to be laid in the future when the Corps of Engineers' proposed Markham Ferry Dam is to flood the area.

Just east of Grand River is a 108-in. dia rock tunnel running 1,475 ft through a hill. Concrete lining of this must be finished, too, before the entire new conduit will be completed.

In all, there will be 24 miles of 66-in., 28 miles of 72-in., 4,716 ft of 84-in. and 1,288 ft of 60-in. pipe in the second Spavinaw project.

• **New source**—Tulsa's supply will be boosted to 63 mgd by addition of the new aqueduct and new source. Water will flow by gravity (as does the old supply) to Mohawk reservoir and the pumping station which feeds the city distribution system.

The new source will be an 82,000-acre-ft reservoir behind a $2¼ million dam above the original reservoir on Spavinaw Creek. This concrete and earthfill structure is now 25% built with completion set for early next year.

As part of the new project, a chlorination plant was built at the lower Spavinaw Dam, to prevent water sponge from growing in the pipeline, reducing its capacity.

(During 1950 Tulsa's Water Department prepared a report on waterworks improvements, recommending treatment plant capacity be raised from 40 to 60 mgd, a pumping and boiler capacity increase and distribution system improvements. Improvements, proposed to accommodate 1960 demand, would cost an estimated $8,000,000. Alvord, Burdick & Howson, Chicago consultants, are reviewing the proposition.)

• **Who engineered it**—Work on the second Spavinaw project is under direction of W. F. McMurry, superintendent of water for Tulsa. W. R. Holway and Associates of Tulsa designed the new supply and are supervising construction. In 1947 this firm joined with Victor H. Cochrane, of Tulsa, and Black & Veatch, Kansas City, Mo., in writing a report that recommended the present project as best new water source for the city. And in 1923 it was W. R. Holway who as city engineer supervised construction of the first project.

Lock Joint Pipe Co. of East Orange, N. J., manufactured the pipe for this second job as it did in '23. L. G. Wilhelm was Lock Joint's man in charge this time.

Pipe-laying was done by: S. E. Evans Construction Co. of Ft. Smith, Ark.; M. E. Gillioz, of Monnet, Mo., and J. W. Howell Construction Co., of Quincy, Ill. The Evans firm and Poteau Trucking Co. of Poteau, Okla., delivered the pipe from plant to site.

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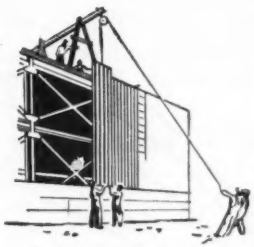

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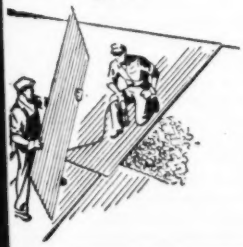

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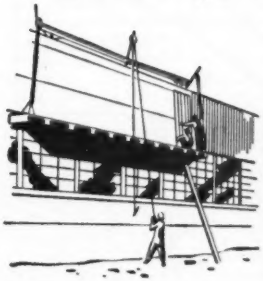
Top-Speed Insulation is a Robertson method of applying insulation entirely from the outside. It halves the construction time.



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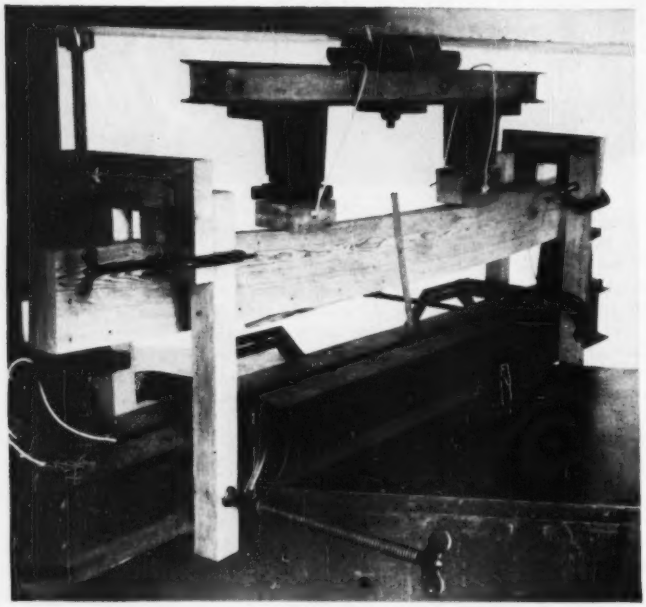
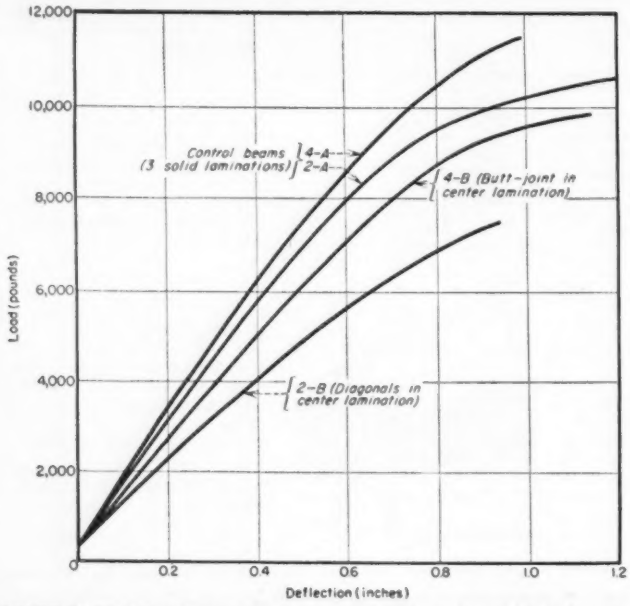
Madison, Wis.



THREE TYPES of laminated timber beams were tested for bending strength and deflection under loads applied at the one-third points.



CONTROL BEAMS of three solid laminations carried more load and deflected less than beams having two outside solid laminations and a pieced center lamination.

HOW TO GET THE MOST STRENGTH out of nailed laminated timber beams built-up out of available lumber on the job has been a moot question in both building and heavy construction. A common example in small buildings is the floor-supporting timber beam near the center of an area. Ordinarily, these beams are made by nailing three 2-in. planks together, side-by-side, and erecting to give edge bearing.

In heavy construction the solid center lamination sometimes has been replaced by two 2x4's extending diagonally like a truss from the bottom corner at each end to the top center, thus forming an inverted V. Still another variation—used widely in rafter construction—is a three-piece beam with the center lamination having a butt-joint at the midpoint of the span.

• **How they compare**—Tests made at the U. S. Forest Products Laboratory, Madison, Wis., show conclusively how the three types of laminated construction compare in bending strength and deflection. Briefly, the beams made up of three solid laminations carried 73% more load than those containing diagonal members for the center lamination, and 15% more load than beams using a two-piece center lamination having a butt-joint at the mid-span.

In all cases the deflections were considerably greater under a given load for beams with diagonals and butt-joints than for beams with solid center laminations.

As shown in the accompanying table, control beam 2-A (three solid laminations) carried 10,690 lb maximum under a deflection of 1.2 in., compared with 7,470 lb at 0.94-in. deflection for beam 2-B (using a center lamination of trussed members). Also, three control beams of solid laminations (3-A, 4-A and 5-A) carried an average load of 10,090 lb under a 0.97-in. deflection, compared with an average of 8,750 lb carried by three butt-joined center-lamination beams (3-B, 4-B and 5-B) under a deflection of 1.10 in.

• **Girders 134-years old**—Some builders of the 19th century evidently thought well of the idea of using solid exterior laminations with trussed center lamination. For example: during the re-

modeling of the White House, built-up timber girders were discovered in the original construction of 134 years ago, consisting of two 6x18-in. timbers separated by 6x6-in. diagonals mortised into the faces of the main members. Hand-wrought iron bolts were used for fasteners.

• **One-half normal size**—In the tests at Madison, the built-up beams measured 2⅜-in. wide, 6-in. deep, and 72-in. long, over-all. Span length between supports was 69 in. This is just one-half the size of nominal 6x12-in. by 12-ft built-up beams commonly used as load-carrying girders. They were well nailed from both sides with 7d cement-coated nails.

Nominal 1-in. lumber of select grade, surfaced to ⅞-in. thickness, was used in building the test beams. They were made of three laminations, and built in matched pairs; a pair consisting of one control and one test beam, with corresponding laminations in the two girders cut from the same board.

• **Five pairs of test girders**—There were, in all, five pairs of test beams. Two pairs were built in which one of each matched pair (control beam) consisted of three solid laminations; the other beam in each pair having solid outside laminations and two ⅞ x 1⅞-in. diagonals replacing the center lamination. Three pairs were built in which one of each matched pair was the control, having three solid laminations. The other beam of each pair had solid outside laminations, and a two-piece center lamination with a butt-joint at the center of span.

• **Method of test**—The beams were tested for bending strength in a universal testing machine by loading at two points, one-third the span from each support. Deflections were measured at the center of the span for equal load increments.

After each test, moisture and specific gravity determinations were made on individual laminations. Specific gravity was based on oven-dry weight and volume. Beams 1-A and 1-B were tested without lateral restraint and with self-adjusting supports. But in these two tests, both beams buckled sideways. Consequently, the remaining beams were tested with lateral restraint near the rigid end supports.

These few tests demonstrate the weakening influence of other than full-sized continuous laminations in built-up beams where design is based on full-sized members.

RESULTS OF BENDING TESTS

(All beams 2 3/8 x 6 x 72-in., over-all—Third point loading)

Beam No.	Type*	Specific gravity	Moisture content (Percent)	Maximum load (Lb.)	Deflection at maximum load (In.)	Type of failure
1-A	Control	0.50	11.4	8,680	0.81	Cross-grain tension followed by buckling sideways
1-B	Diagonals	0.48	10.6	3,700	0.40	Cross-grain tension in one lamination
2-A	Control	0.51	11.7	10,690	1.20	Tension in outside lamination followed by buckling sideways
2-B	Diagonals	0.50	10.6	7,470	0.94	Tension and horizontal shear
Av.	Controls	0.50	11.6	9,685	1.00	
Av.	Diagonals	0.49	10.6	5,585	0.67	
3-A	Control	0.53	12.4	9,500	1.05	Tension
3-B	Butt joint	0.54	12.1	8,140	0.97	Tension
4-A	Control	0.57	12.6	11,720	0.99	Tension
4-B	Butt joint	0.50	12.4	10,140	1.23	Tension
5-A	Control	0.55	11.7	9,070	0.85	Horizontal shear followed by tension
5-B	Butt joint	0.53	11.4	7,970	1.10	Tension
Av.	Controls	0.55	12.2	10,090	0.97	
Av.	Butt joint	0.52	12.0	8,750	1.10	

* All controls had three solid laminations. Beams 1-B and 2-B had two 13/16- by 1-13/16-in. diagonals replacing the center lamination. Beams 3-B, 4-B and 5-B had a butt joint at center line of the middle lamination.

Garages protected against CO fumes

Workers in four new Board of Transportation bus garages in New York City are protected against carbon-monoxide poisoning by ventilating systems actuated by CO detecting and alarm instruments. Whenever the concentration of CO exceeds 2 parts in 10,000, fan motors are switched from low to high speed, lamps on a control panel light up and a buzzer on the panel sounds an alarm.

Each of the garages contains about 140,000 sq ft of floor area, with storage space for 200 to 250 buses.

In two of the garages, the heating and ventilating systems are integral. Supply and exhaust fans and steam-heating coils are installed in two sheet-metal housings in the roof trusses. Garages are divided into five zones, each served by an independent system.

One zone is the fuel dispensing area, cut off from the rest of the building by fire walls and automatic fire doors. This area is supplied with 100% fresh air continuously. Exhaust fumes from buses are removed through flexible metal hose connections to tail pipes and discharged into underground ducts.

The other four zones receive 10 to 15% fresh make-up air at all times. Once an hour, for about 10 min, and during peak traffic hours, the systems automatically change from partial recirculation to 100% fresh air. Whenever CO concentrations are excessive, the ventilating systems are again turned on.

The detecting instruments are in the fan booth. Air is drawn into them by small blowers connected to a 1/80-hp motor and forced through a cell containing thermocouples and a catalyst—active hopcalite, which converts CO to carbon dioxide. The chemical reaction liberates heat, which is measured by the thermocouples and indicated on a meter. When the meter needle reaches a predetermined setting, indicating the presence of 2 parts of CO in 10,000, the alarm circuit is closed. CO released by a fire would also set off the alarm.

In the other two garages, the heating and ventilating systems are independent of each other. Unit heaters mounted on the trusses heat the garages. Ventilation requirements are met by roof fans, which also are automatically controlled by the detecting instruments. The CO alarm boxes generally are mounted on walls 12 ft above the floor. Each of the 27 alarms in each garage samples the atmosphere within a radius of 40 ft.

The detecting and alarm instruments were manufactured by the Mine Safety Appliances Co., Pittsburgh, Pa.

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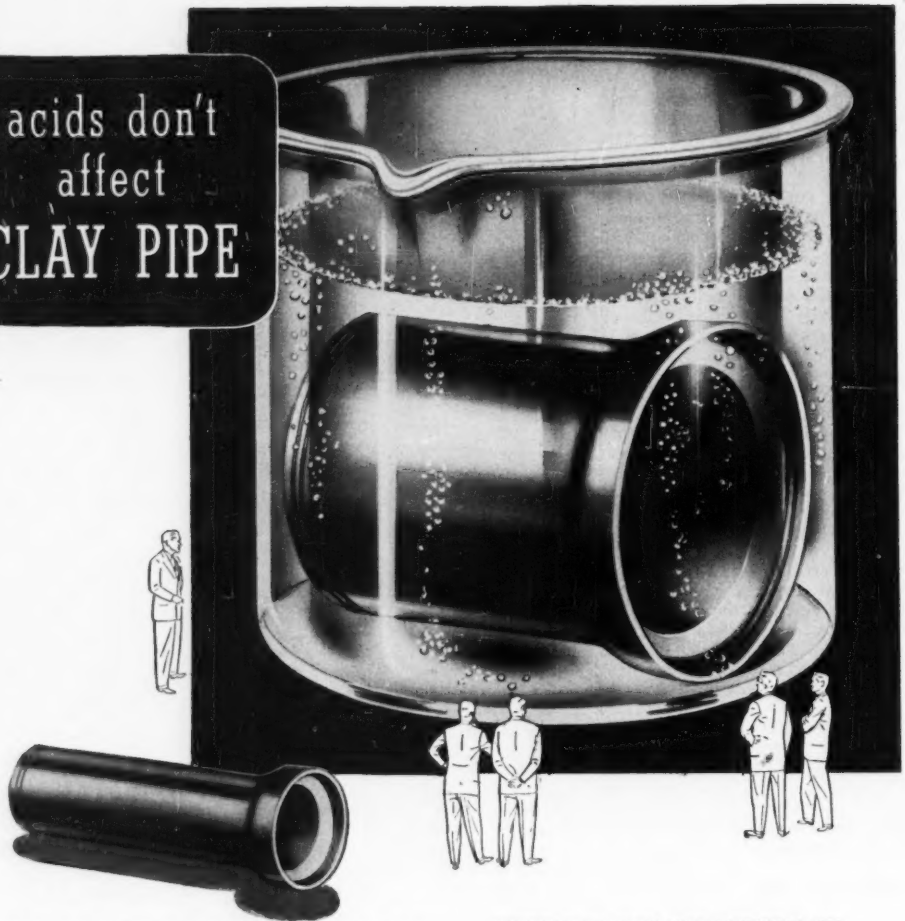

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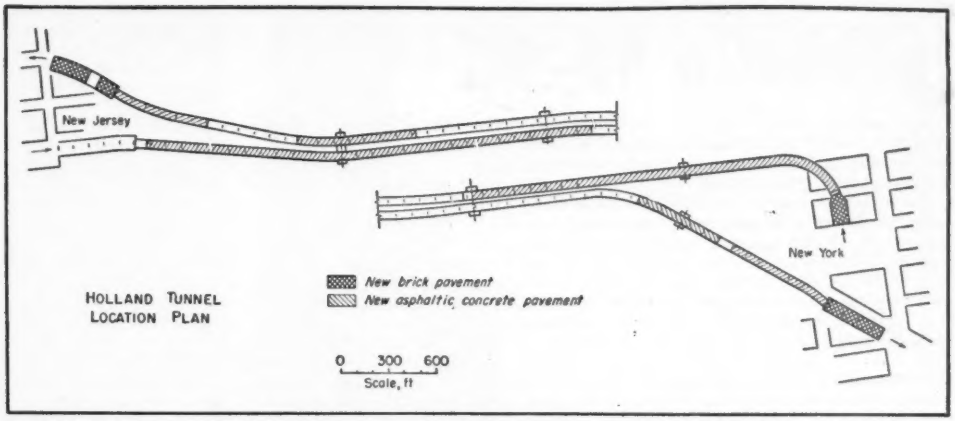

AREAS where worn granite-block pavements were replaced with bituminous concrete by the Port of New York Authority.

Holland tunnels provide . . . Tough test for asphaltic concrete

Alvin L. Ruefer
Superintendent of Structural Maintenance
Port of New York Authority

AFTER nearly two years of service, during which millions of vehicles—confined to the same wheel lanes—had passed over it, more than 7,400 lin ft of asphaltic concrete roadway in the Holland Tunnel has shown little or no wear.

An inspection of initial work, completed in 1949, showed no shoving, grooving, rutting or creeping. Checking the surface with a straight edge showed no variation of more than ¼ in. in 10 ft in any direction. The pavement still presents a firm, smooth-riding, skid-resistant surface. Additionally, the noise level in the heavily traveled artery between New York and New Jersey has been reduced materially, and traffic is moving faster.

The Holland Tunnel, which carries probably the world's most concentrated traffic (18,000,000 vehicles annually—35% of them being trucks), has always presented a difficult problem in pavement repair.

The original roadway pavement, put down in 1926-1927, consisted of granite blocks, laid on a sand and cement cushion, about 1 in. thick, the blocks being rammed down and an asphaltic filler poured in the joints to prevent movement and provide a moisture seal. This type of pavement was adopted to permit repairs to be made in small sections.

The problem of repair grew steadily in the 22 years of the tunnel's operation up to 1949. At first, minor failures were repaired by force account, but by 1944, 4,760 sq yd had to be relaid by contract at a cost of $24,460. In 1946, 7,500 sq yd was relaid by contract at a cost of $52,400.

A survey made in June, 1949, showed that about 20,500 sq yd, or 47 percent of the total paved area in both tubes and open ramps, required repair. These areas were principally in the land sections—from the river shafts to the exists or entrances, where the heaviest grades occur.

Engineers for the Port of New York Authority had forseen the eventual replacement or resurfacing of all block in the two tubes. In preparation for this they installed test sections of various types of pavement, including portland-cement concrete, penetration macadam and hot laid asphaltic concrete. Brick pavements, such as are used in the Lincoln Tunnel were considered, but experience indicated that maintenance costs would be higher than for asphaltic concrete. However, a test section of brick was put in on the entrance ramp on the N. J. side.

• **Troubles**—The inability to obtain the necessary time for curing—without seriously disrupting traffic—precluded the use of portland-cement concrete other than vacuum concrete.

However, in 1948 a test section of a concrete pavement was installed and opened for traffic within six hours after being treated by the vacuum concrete process. Thickness of these slabs (6 in.) was controlled by the top of the roadway floor beams and the drainage openings in the concrete curb; a greater thickness of slab could not be obtained without structural changes in the roadway or installation of an entirely new drainage system.

Most of these slabs have cracked, and several will have to be replaced this year.

Penetration macadam test sections put down in 1947 required considerable maintenance, and in general were found to be unsuited to the severe traffic conditions of the tunnel, particularly in the presence of moisture. However, a test section of asphaltic concrete installed in May, 1947, seemed to meet all expectations.

• **Contract let**—Acting on this information, the Port Authority, in October 1949, let a contract to the Sicilian Asphalt Pavement Co. of New York at a bid price of $137,202 for necessary repairs to the deteriorated area (47% of total paved areas) on a unit price basis. The work included removing existing granite block and replacing with a dense mix of asphaltic concrete, laid in three layers and having a total depth of from 3½ to 5½ inches in the tunnel section. Also included were installing brick pavement and drains in the ramps.

An interesting feature in the deci-

sion to repave was a redesign of the drainage system in the tunnel. As originally built, the road was sloped to one side, with drains installed on one side of the tunnel only, leading water into the area below the roadway to be removed at sumps. As part of the new work, however, it was decided to crown the roadway at the rate of ¾ in. in 10 ft draining it to both sides.

The result of this crowning was to give the new pavement a variable thickness. On the fast-lane side, where the new slope was the same as the original, the thickness was constant at about 5 to 5½ in. while on the slow lane side the thickness varied from 5 to 5¼ in. at the center line to 3½ to 4 in. at the far curb line.

• **Work starts**—Prior to start of construction, motorists were informed by signs, pamphlets and newspaper articles that the south tube of the tunnel would be closed for roadway repairs from 8 p.m. to 6 p.m. Monday through Friday. They were also informed that while these repairs were being made, the north tube would carry two-way traffic. This allowed the contractor to work the entire roadway width in the south tube—the first time this was possible since the tunnel was opened.

Repairs were started in the south tube on Oct. 5, 1949. Because of manhole castings about 500 ft apart in the center of the roadway, the contractor was permitted to work in not more than two alternate 500-ft sections at any one time. Within these sections, he removed the granite block pavement and sand cushion. As this made it necessary for traffic to ride on the structural concrete forming the roadway base during the daytime, the contractor was required to build ramps from the top of the remaining pavement to the base.

The granite block was removed by front-end loaders, with buckets equipped with special curved plates that allowed the block to ride up the bucket ends as the pavement was peeled up in sections about 4 ft by 5 ft. One machine was able to rip up, load and remove about 650 sq yd of block per night.

After the block was removed, the sand-cement cushion was broken up and removed. Then the subbase was swept with hand brooms, in some cases exposing the tops of the steel roadway beams which had been originally coated with tar (sometimes up to ¼ in. thick). Most of this tar was removed by chipping with pneumatic tools so that it would not bleed through the new binder course and fill the voids. Also, the tack coat of emulsified asphalt originally specified was omitted, it being thought inadvisable to use a material that, together with the tar, might cause slipping rather than create a bond between the new pavement and the concrete base. A tack coat was used, however, around castings and the granite curbs.

• **Careful work**—When the test section of asphaltic concrete was laid in 1947, great care was taken in design and placement. This same care was emphasized throughout the job to all working personnel.

Specifications called for the pavement to be laid in three courses, and to conform to the Asphalt Institute specifications A2a hot-laid dense-mix asphaltic concrete.

The binder course was to conform to mix #II, the intermediate course to mix #IV, and the top or wearing course to conform to mix #V. All asphaltic cement was to have a penetration of from 50-60 at 77 deg. F.

Before starting work, the contractor submitted samples of the sand, stone and filler he intended to use, for test by the Port Authority laboratory. From this point on, the final mix was determined by cut and try.

Limiting factors of the final design were set as a mix having a void content of not less than 2% or more than 5%, and a stability of not less than 2,500 or more than 6,000 as determined by the Hubbard-Field method.

The final mix for each course was as follows:

1. Base course, voids 2.45%, stability 5,000.

2. Intermediate course voids, 2.4%, stability 5,800.

3. Top course voids, 2.1%, stability 5,600.

Because the characteristics of a finished pavement vary greatly with the type of material used, it is believed that the actual field mix used on this job might be misleading if given in detail. However, it can be said the binder course was composed of ¾-¾ stone with an asphalt cement content of 5%, while the intermediate and wearing courses contained ⅜ to ¾ stone with an asphalt-cement content of 6 percent.

• **Producing the mix**—After the field mix was determined in the laboratory, the contractor set up a plant consisting of two 1-ton open pug mixers with four bins, each having a capacity of 25 tons. Three of these contained stone, the fourth sand. Screen analysis of each stone bin was taken twice each night. The asphalt cement was tested at the refinery, put in sealed tank cars and retested at the plant storage tanks before going into the service tank.

An inspector was present to check the batching of each mix, and the trucks were weighed on a load scale as a check. A difference of more than 2 percent was cause for rejection and the checking of all scales. Samples of the mix were taken each night, sometimes in the tunnel and sometimes at the plant.

The asphaltic concrete left the contractor's plant in Brooklyn at a temperature of 325 deg F in trucks with insulated bodies covered with tarpaulins. Running time was 30 to 40 minutes and the asphalt was placed on the roadway at temperatures varying from 275 deg to 300 deg. The temperature of the material in each truck was checked before being dumped, and rejected if found to be below 275 deg.

• **Placing pavement**—Placed only when atmospheric temperatures were above 40 deg. F, the mixture was spread by a paver, one-half the width of the roadway at a time. One lane was paved with one course for a maximum of 150 ft, then the machine was dropped back and the other lane brought to it. This was done to insure a hot joint and permit effective cross rolling.

Density and temperature of the mixture permitted rolling to begin as soon as the thickness and grades of the course had been checked by inspectors. Three 10 to 12-ton tandem rollers were on hand, two to do the work and a third for standby.

It was found advisable to permit both the binder and intermediate courses to be placed in one night, but the top course was never placed until traffic and ridden over the first two courses for a period of at least 12 hours. When more than one course was placed on the same section during one night, a cooling off period of three hours intervened between placing the courses. On one or two occasions the pavement was sprayed with water until cool. Using this method, there was never any rutting or pushing of the pavement.

In the south tube, 3,800 lin ft of roadway was replaced with asphaltic concrete between Oct. 5 and Nov. 4, 1949, and 650 lin ft were replaced with the material in the north tube between Nov. 14 and 21. The job was stopped then and resumed in April, 1950. The remaining 3,000 ft of defective roadway had been replaced by May 5.

Laboratory work was in charge of E. Pitman of the Port Authority Inspection Division. J. Hopkins, assistant structural maintenance superintendent, was in charge of the construction, done by the Central Maintenance Division of the Authority, of which George T. Riley is General Superintendent. Vincent Cusick was superintendent for Sicilian Asphalt.

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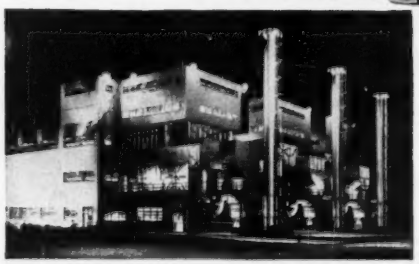

"C" Panel Walls of The Kansas Power and Light Company, Hutchinson. Both steel and aluminum and "combination" panels were used. *Architect:* Black & Veatch, Kansas City.

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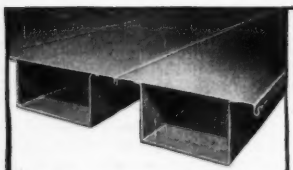

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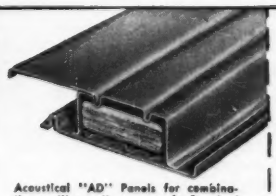

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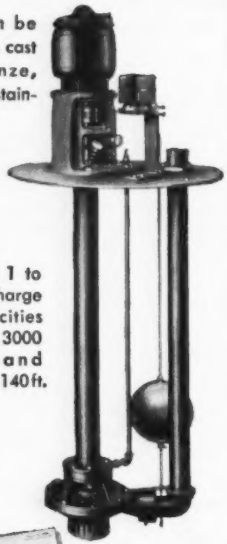

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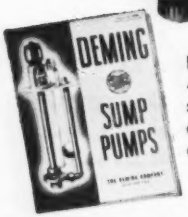

BULLETIN No. 4600-A includes selection tables, accessories and other information.

THE DEMING COMPANY
536 Broadway • Salem, Ohio

SPECIFY DEMING PUMPS

READER COMMENT

Appreciation

Sir: It is not unusual to find timely and pertinent editorials in ENGINEERING NEWS-RECORD, but your editorial "Responsibility Needed" appearing in the March 22 issue (p. 13) deals with such an important topic that I believe it merits special appreciation.

Current irresponsibility of labor seems to begin at the tops of their organizations, but as it inevitably spreads downward it becomes increasingly dangerous to our country's welfare.

ROBERT PATTEN,
Carolinas Branch, A.G.C.
Charlotte, N. C.

Would glass fibers stand up?

Sir: In your March 1 issue (p. 45) you give some space to a suggestion, by Prof. I. A. Rubinsky, that glass fibers would serve as the reinforcing and prestressing medium for prestressed concrete. Editorial comment also is supplied on this suggestion, with the observation that several problems must be solved before the professor's proposal becomes practicable. I would add a warning to the questions you raise.

Professor Rubinsky is reported to propose glass reinforcement because it is resistant to acids and alkalies. Many are inclined to accept such a statement readily, since glassware is the common implement of the chemist, who does not hesitate to use it as a container for the most corrosive materials. Yet glass is soluble in alkaline solutions.

I am told that gin, for instance, is sold in frosted bottles so that the consumer's curiosity would not be aroused by etched glass were it to be packaged in clear glass containers. The pH of gin is so high that the glass is slowly attacked by it. Naturally the consumer would be skeptical about what such a product might do to his stomach if he were aware of what it did to glass.

Now over 60% of portland cement is alkali material, and it contains small amounts of the very active alkalies, sodium and potassium. Much has been written in late years on just how active the latter two are in concrete containing certain siliceous aggregates. These reactive siliceous aggregates are attacked by the cement alkalies, causing expansion and disintegration of the concrete. To measure the extent to which cements are likely to participate in such action, they have been deliberately put in contact with a highly reactive aggregate prepared by crushing pyrex glass to the granular size of sand. Mortar made with this crushed glass often will expand as much as 0.25% in 2 weeks, and exude calcic- and sodic-silica gels from its surface. I understand that ordinary bottle glass will perform similarly. Therefore, I can imagine that glass fibres, with considerable surface area exposed, might turn out to be extremely vulnerable to portland cement paste.

H. S. MEISSNER,
Research Engineer
U. S. Bureau of Reclamation
Denver, Colo.

Submersible hydro stations

Sir: In ENR Nov. 16, 1950, p. 35 is an article under the head "Submersible hydro plants increase low-head output" in which the statement is made that there are now four power plants of this kind in Austria and Germany. That statement is not quite correct. On the Lech River in Bavaria alone there are 9 such power plants in use out of 15 planned. My firm constructed the plant at Pitzling.

H. W. BUTZER,
Dortmund, Germany

Since the article referred to by Mr. Butzer was published we have learned that a patent covering the basic principal applied in the design of these powerhouses—use of a turbine-generator unit in which the water passes through the turbine and the generator, set with their common axis horizontal or nearly so—was issued to L. F. Harza, Chicago consulting engineer, back in 1924. Although Mr. Harza conceived of this arrangement of turbine and electric generators as advantageous for low-head hydro plants, his patent drawing did not show such a turbine-generator set in the body of a low overfall dam, as is done in some if not all the German dams using this type of installation. In the German dams the whole power station is below water level in the river during times of flood, access to the generators being through passageways in the dam from hatchways at the channel edges. Mr. Harza states that he built no units using this design, but adds that some German engineers, in their technical discussions of the submersible plants built in Europe in recent years, recognized his prior conception of their basic principle.

A further sidelight on these German plants comes from J. D. Lewin, an engineer of the New York Board of Water Supply, who spent some time

The problem was . . .

How to get extra copies of blueprints—

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A case history based on the experience of the American Brake Shoe Company, Kellogg Division, Rochester, N. Y.

The blueprints (and direct-process prints) submitted by customers placing machining orders used to be a problem for the Kellogg Division, American Brake Shoe Company.

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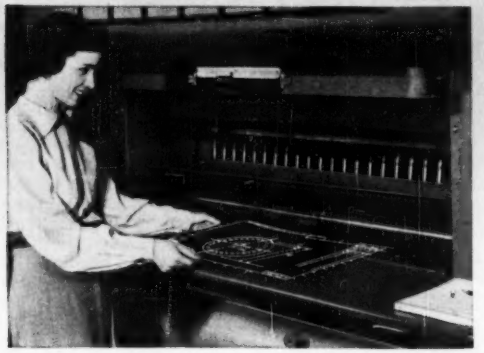

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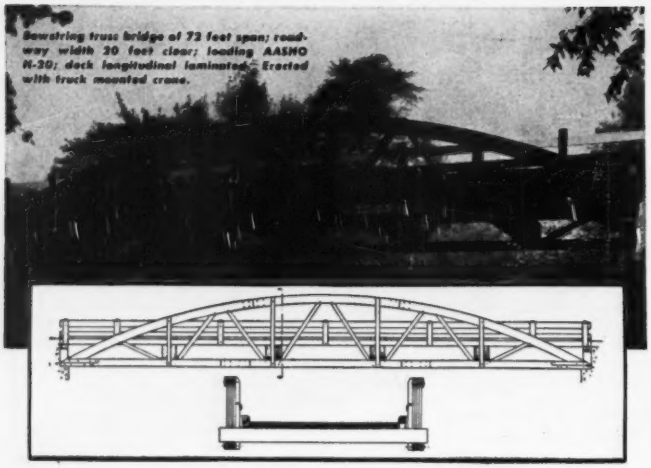
Bowstring truss bridge of 72 feet span; roadway width 20 feet clear; loading AASHO H-20; deck longitudinal laminated. Erected with truck mounted crane.

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in Europe recently. Mr. Lewin states that the reason so many of these plants were built is because the holder of the German patents rose to a place of influence in the Hitler regime and compelled the adoption of designs based on his patents upon the builders of 13 hydro plants.—EDITOR.

Prestressed roads favored

Sir: I read with great interest your article, "Road prestressed to prevent cracks," (ENR April 12, p 37).

It is generally felt that due to the increased traffic density and the ever increasing axle loads, deterioration of our older roads is outstripping our development of new ones. This is borne out by the results of studies made by F. Burggraf, associate director of the Highway Research Board, and reported at the last convention of the Highway Officials of the North Atlantic States, and by a statement (made in 1948 by Bertram D. Tallamy, Superintendent, New York State Department of Public Works, at the same conference) that traffic-density estimates for 1960 had already been exceeded in 1950. Since new roads are substantially of the same design as the older ones, they will be subject to the same faults.

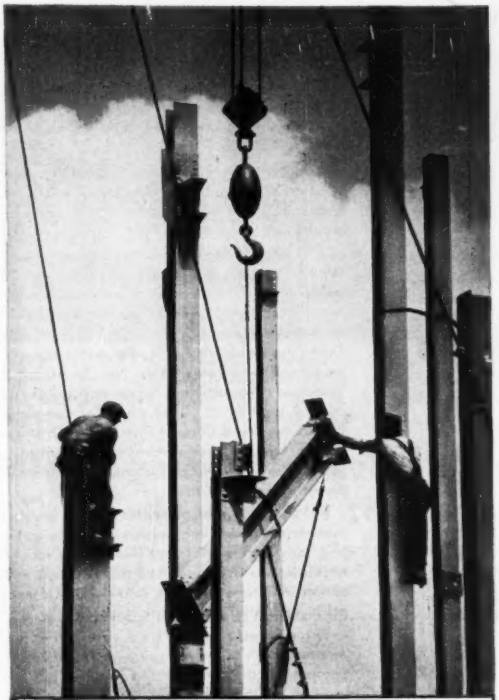
So far, most road builders have not appreciated that prestressing is the solution to many of their problems. In this respect, may I point out that a prestressed concrete slab, constructed in 1946 by John A. Roebling's Sons Co. in its Chicago warehouse to the writer's design, does not show any sign of cracking, not even hair cracks. The contact pressure from equipment (10-ton cable drums) is 1,000 psi, which is about ten times that on roads and runways.

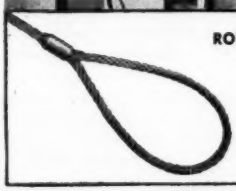
In the Crawley road mentioned in your article, difficulty was experienced in calculating expansion, due to the unknown subgrade restraint. In the Chicago slab, this difficulty was overcome by casting the 3-in. thick prestressed slab on a prepared bed of weak concrete, for which the restraint had been determined.

While it is reported from England that the Crawley road costs the same as a normal concrete road, it would not be crackless (due to the low prestress and uncontrolled friction). Should a crackless road be specified, the cost will be higher than for a conventional type, but the low maintenance and depreciation costs should make this an acceptable solution especially for prestressed carpets over existing badly cracked roads.

L. COFF
Consulting Engineer
New York, N. Y.

WIRE ROPE





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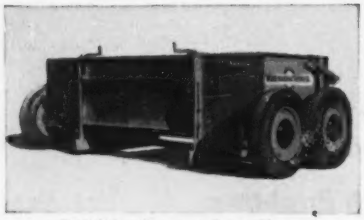
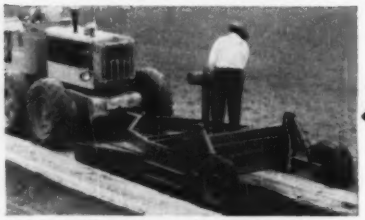
control } THE DIFFERENCE BETWEEN SUCCESS OR FAILURE OF A JOB



WOOD Spreader Box



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Good road-mix paving is the result of using the right *materials, properly proportioned* and *correctly mixed.*

The selection of the right materials is the engineer's job. The *proportioning* and *mixing* of these right materials needs also to be under the engineer's control.

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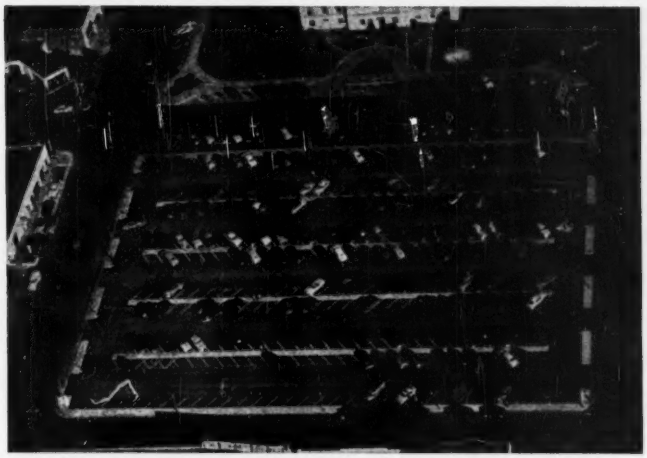

MUNICIPAL PARKING LOT—This city-owned, metered parking lot at Temple, Tex., has greatly relieved congested traffic conditions there. Land value, $300,000; force account construction cost, $6,900; meters, $19,520. Design and construction were under the supervision of W. C. Bengel, director of public works.

Metered parking lot helps business in Texas city — Other traffic news

Recently completed and placed in operation at Temple, Tex. (pop. 24,970) is a municipally owned, metered parking lot covering an entire city block within two blocks of the center of the business district.

The area has five entrances and five exits. Any car on leaving has only to back into the traffic lane and then drive straight out to the street. Free circulation of traffic throughout the area is possible without requiring the driver to enter the thoroughfares along the perimeter of the park. The driver can choose one of two streets for an exit. Walks 5 ft wide extend the length of the field. Occupants can walk from their car without entering the traffic lanes except at the extreme ends of the lot. Surface is 2 in. of rock asphalt on 8 in. of stone base. Walks are concrete. The park has 278 meters inside, 29 along the street on the east and 13 on the west, a total of 320. Parking rate is 5¢ for 2 hours.

Other recent traffic and parking developments follow:

• **Delaware**—The legislature has passed a bill which would permit the creation by municipalities of parking authorities. Passage of the bill is expected to help Wilmington solve its critical parking problem. The measure now goes to Gov. Elbert N. Carvel. It would authorize parking authorities to acquire and operate parking projects, to conduct research into parking problems, to establish coordinated systems of parking facilities, and to borrow money and issue bonds when they are required.

• **San Francisco, Calif.**—A 4-story underground garage at Union Square has been recommended for use as a public shelter in case of enemy attack. This is only one of a number of buildings being investigated by the City's Disaster Corps in order to designate those which will be used as public shelters in the event of an emergency. Those which have been approved because of structural safety and location, and for which the owner's permission for their use has been granted, will be marked with large "Air Raid Shelter" signs.

It is estimated that the 429,000 sq ft of space in Union Square Garage could comfortably accommodate about 50,000 people, though filled to its 1500-automobile capacity. Gasoline tanks servicing the garage are located underground and outside the structure's foundation walls. Garage personnel will be trained to handle any emergency. Fire brigades will be trained by the Fire Department; auxiliary police by the Police Department; and first aid teams by the Red Cross.

• **Nashville, Tenn.**—A new pickup-delivery parking service is scheduled to start soon, following approval of the plan by the Nashville traffic commission. Allocation of curb space for the private business venture has been made by the commission. Here is how the plan will work: With shopping in mind, or a business appointment, one drives to the heart of the city where curb space has been allocated on both sides of Capitol Boulevard at Capital Square. A uniformed attendant drives the motorist to any downtown location requested; then drives the car to an outlying parking spot.

Minutes or hours later, the owner telephones the parking service, and the attendant delivers the car anywhere desired in the downtown area.

The proposed fee for taking care of the car for up to four hours is 50 cents. It is expected that the parking concern will make its profit from business houses which will subscribe to the service for the benefit of their customers.

Many other cities are finding cooperation of local merchants a big factor in solving traffic problems.

• **Youngstown, Ohio**—The Greater Youngstown Area Foundation has agreed to advance $26,100 for preliminary work for a 2,400-car parking garage planned over the Erie Railroad tracks in downtown Youngstown. It is said that it would be the largest project of its kind in the United States.

The foundation will put up $18,600 for preliminary engineering studies by J. E. Greiner Co. and $7,500 for preliminary work by Parsons, Brinkerhoff, Hall and MacDonald. City officials have accepted a proposal of Goldman, Sachs & Co. to purchase revenue bonds to finance the $5,000,000 parking facilities and will begin negotiations with the railroad and property owners for acquisition of land. The agreement constitutes a preliminary contract to complete engineering studies which will decide whether the garage should be built at the proposed site.

The city has authority to cancel the agreement with the investment company if the project is not in accord with the general plan traffic study, (by Pace Associates) not yet completed; if street relocations and repairs would place too great a burden on the city; and if the city is unable to reach an agreement with the Erie Railroad that is fair and equitable. A clause in the agreement would keep the investment firm in the picture if an alternate site is chosen. Another plan calls for a 1,500-car space instead of the 2,400 now considered.

(*Continued on page 50*)

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The recognized superiority of Lauson engineering and long-life performance carries a tremendous advantage to manufacturers of quality equipment. Important, too, is the fact that the Lauson name reaches almost 20 million consumers through advertising — a powerful sales weapon in selling better power equipment!
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Municipal Briefs . . .

• **Helping street cleaners**—City officials of Boston, Mass., have developed a novel all-night street parking plan to aid the street cleaning machines in the Dorchester section. Drivers will be urged to leave their cars on the odd-numbered side of the street three nights a week and on the opposite side two nights. Sound trucks will go through the streets urging auto owners to cooperate. The idea was worked out by Public Works Commissioner George C. Hyland.

• **Shortages delay city work**—In Cincinnati, Ohio, shortages of critical materials are delaying city projects of several million dollars, according to W. R. Kellogg, city manager. Failure to get steel sheet piling has held up the $5,000,000 sewage disposal plant on the Little Miami River. Another project facing delay is the new Lincoln Avenue bridge. The low bidder on the job, which calls for an expenditure of $50,000 for steel alone, could not promise steel for at least a year. A third project, part of the $15,000,000 waterworks expansion program, has been delayed by a failure to obtain water pipe for the new line.

• **Garbage survey**—Stevens Institute of Technology has been engaged by Bergen County, N. J., to make a survey of refuse and garbage disposal systems in the county's 70 towns. Paul A. Volcker and William S. Foster will be in charge. Data compiled by the Bergen County Planning Board and Park Commission, showing quantities, sources and present disposition of refuse, will be available to the engineers. The survey was ordered because the rapidly increasing population.

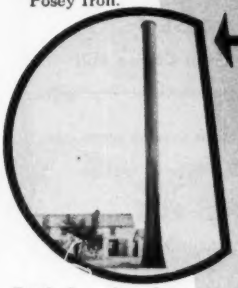
• **Many municipal parking lots**—A total of 450 cities over 10,000 population now own and operate parking lots, according to the International City Managers' Association, which adds that 105 cities reported opening their first parking lot last year. A total of 107 other cities, which previously reported parking lots, placed additional lots in service in 1950. Albany, N. Y., Austin, Tex., Fort Wayne and Gary, Ind., Jersey City, N. J., and Nashville, Tenn., were among the larger cities offering parking lots for the first time last year. Receipts from meters installed on the lots was the commonest method of financing new parking facilities, although 56 cities purchased their lots with general tax revenues. Only Hempstead and Rockville Center, N. Y., and Johnson City, Tenn., used special assessments against benefited property owners to finance off-street lots.

(*Continued on page 54*)

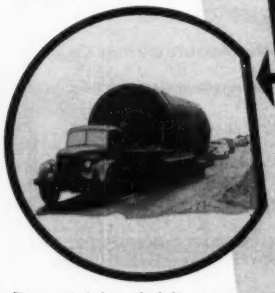
POSEY EQUIPMENT EXPANSION

Backs Posey Delivery Dates

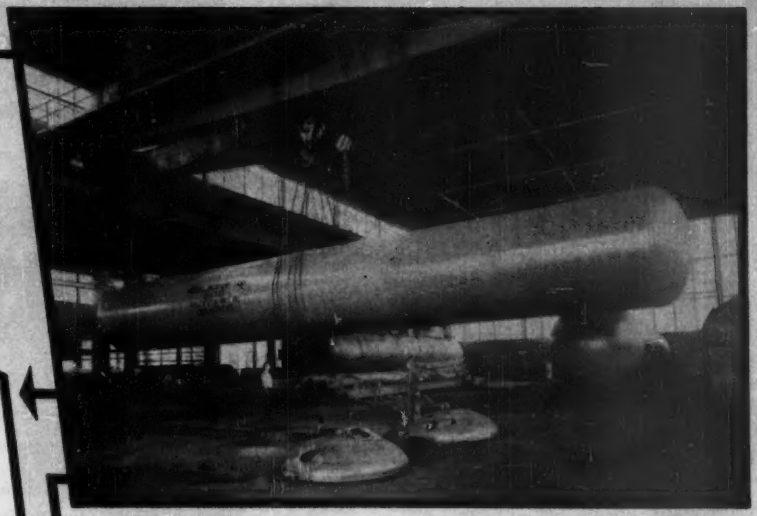
200,000 gallon elevated tank— by Posey Iron.



Stacks have long been a specialty at the Posey Iron Works.



Posey stainless clad digester —13′ O.D. x 40′ long.



This 50-ton crane (27-foot headroom) allows quick, easy handling of sizeable units like this butane tank.

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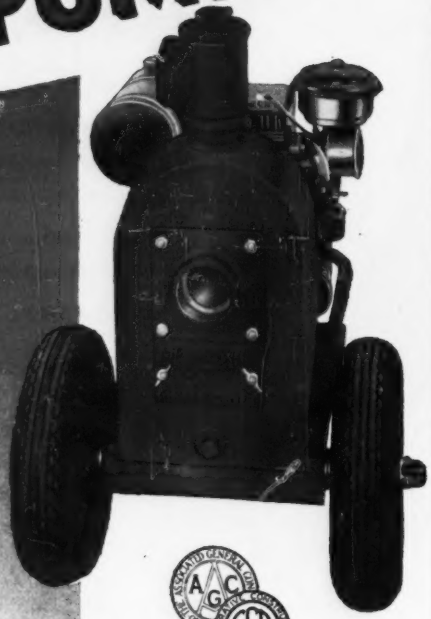

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MUNICIPAL . . .

• **Structure's safety questioned**—The city council of St. John, N. B., has asked the consulting engineer on a new traffic viaduct over rail tracks in front of the local railroad station to report on the safety of the structure, which was opened only in April and was built at a cost of about $925,000. Complainants have claimed that a section of the wall has moved and there is danger of it falling.

• **Anti-smoke ordinance** – An anti-smoke ordinance has been adopted by Rochester, N. Y. Not only does it prohibit the emission of smoke in dangerous quantity, but it also stipulates that soot, acid fumes, noxious gases, strong odors, dust, dirt and fly-ash shall not be permitted to be discharged into the open air by fuel-burning equipment within the city. The ordinance provides that all buildings constructed hereafter shall have equipment capable of collecting 85 percent of the dust arising in the plant.

• **New code for Maryland**—After three years of study, the Maryland-National Capital Park and Planning Commission has offered a new building code for Montgomery and Prince Georges counties. By permitting the use of new, labor-saving structural systems and materials, it is expected to bring about substantial savings in construction costs.

Test Oregon volcanic ash as pozzolan for concrete

Preliminary tests conducted at Oregon State College on use of volcanic ash mixtures in concrete have indicated that samples selected from the ash mantle covering hundreds of thousands of acres in central Oregon show promise as pozzolan for concrete. The experiments were conducted at the request of the Oregon Raw Materials Survey by N. R. Brandenburg, research student with the Oregon State College engineering experiment station.

The tests indicate that satisfactory concrete can be made with as much as 20% Oregon ash replacement in the cement. Test specimens had 98% of the strength of all-concrete mixes.

Pozzolans, finely divided siliceous materials, may be used as a partial replacement of cement in large concrete structures (ENR April 5, p 37). They may increase resistance to acid and alkali waters and lower the rate of permeability. It has been used in construction of some massive structures in western United States and elsewhere.

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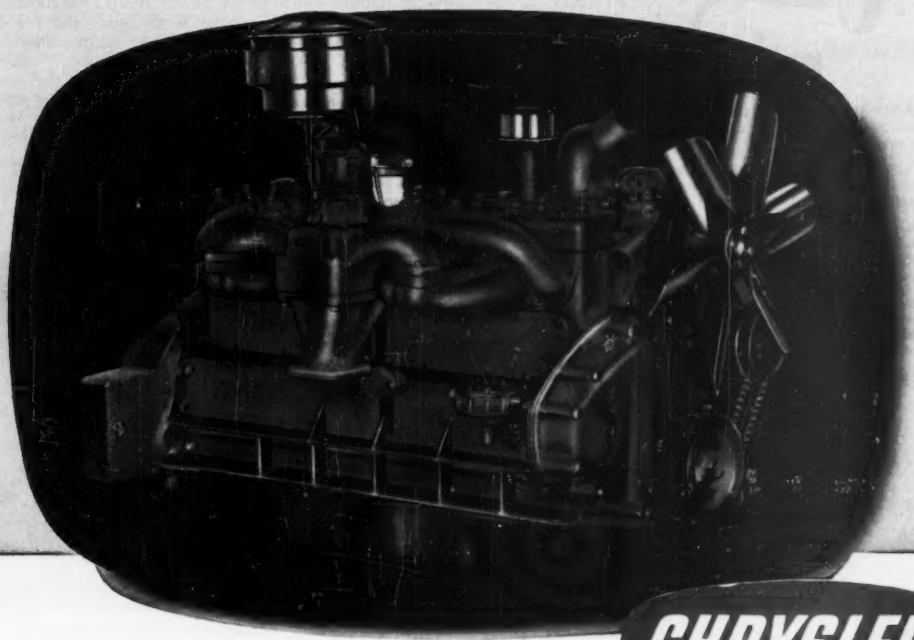

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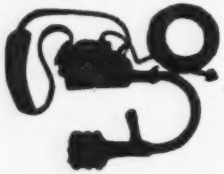

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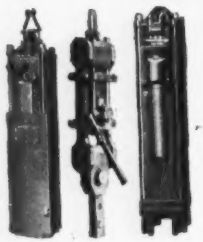

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FOREIGN

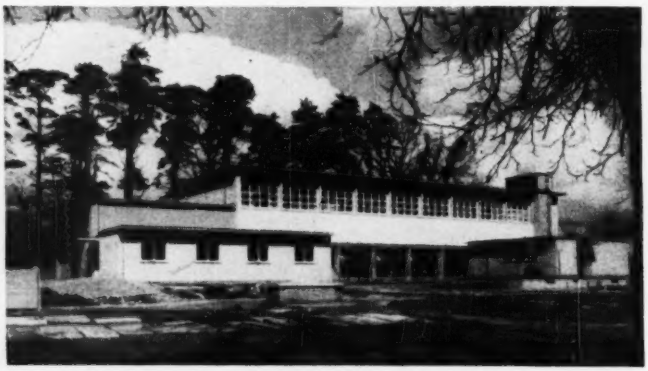
Structural design problems are studied in new lab by British concrete group

The structures laboratory building illustrated below is the first important addition to the Cement and Concrete Association's research station which was established four years ago at Wexham Springs, near Slough, Buckinghamshire, England.

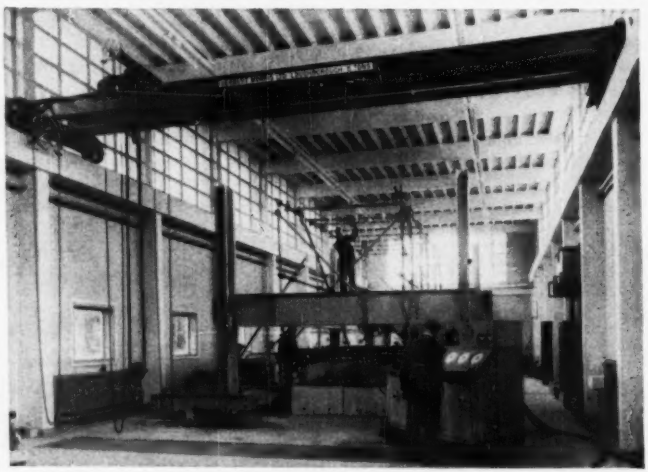
Most of the laboratories at Waxham Springs are housed in buildings originally constructed for other purposes, but the structures laboratory now being opened is the first of the buildings specially designed for research. It is 100 ft long, 30 ft wide and 26 ft high. In this laboratory the intention is to bring together theory and practice so that each may be checked.

A laboratory for precast-concrete research—30 ft square and 14½ ft high—adjoins the structures laboratory.

With the exception of offices and lavatory blocks where the walls are load-bearing, the building has a reinforced concrete frame. T-section columns and main roof beams are spaced 10 ft center to center along the length of the building. Columns, which were cast in place, also support a 5-ton crane. The main roof beams,



EXTERIOR of new structures laboratory building which in itself shows many modern uses of concrete in construction.



INTERIOR of the structure laboratory, showing test frame with bridge deck specimen in position. Hydraulic control panel is in the foreground.

which were precast and prestressed, have an unsupported span of 29 ft 6 in.

Roofs of the precast products laboratory, offices and laboratory wings are 4-in. thick reinforced concrete slabs cast in place.

The test floor is 2 ft 6 in thick. It is reinforced with two layers of 1-in. dia bars. These are 6 in. apart at the bottom and 21 in. at the top. For the passage of unbonded prestressing cables, 24 ducts of 1¼-in. diameter have been incorporated in the concrete at 1-ft centers, 20 in. below the floor level, the ducts being curved upward to within 6 in. of the surface at both ends, so that the floor can be prestressed if necessary. Chanels left at each end of the floor for the insertion of prestressing jacks are fitted with steel duct covers.

With the exception of the brick north wall, the surface finishes are all basically products of cement. Full advantage was taken of this opportunity to demonstrate attractive colorings and textures obtainable with cement and different types of finishes for cast-in-place and precast concrete. Some cement plaster has been used—in grayish green and dull pink. Corrugated asbestos-cement sheeting with white cement paint is used as a facing on the south wall between sills of the high-level windows and the roof of the covered way.

That roof is left as untreated concrete. Columns supporting it have a tooled finish.

The lower part of the wall is faced with precast slabs of different textures. Windows have concrete frames throughout the building.

The products-shop end wall is of precast blocks with an exposed aggregate finish. The office wing is faced with large tooled precast slabs, resembling portland stone in color.

The new laboratory was designed by the late Christopher Nicholson, assisted by Eleanor Michell. Hugh Casson and Neville Conder were associate architects. W. A. Fairhurst was consulting engineer. Holland & Hannen and Cubitts Ltd. were main contractors.

The director of the Cement and Concrete Association is Sir Francis Meynell, and the technical director is A. R. Collins.

Senior officers of the subdivisions of the association are: Structures: P. B. Morice and P. G. Bowie; building and architecture, A. G. Bray and J. G. Wilson; research and development, D. C. Burn; concrete and concrete materials, J. D. McIntosh; engineering, A. G. Saul; development and works, S. G. Boakes; and chemistry and physics, P. E. Halstead.

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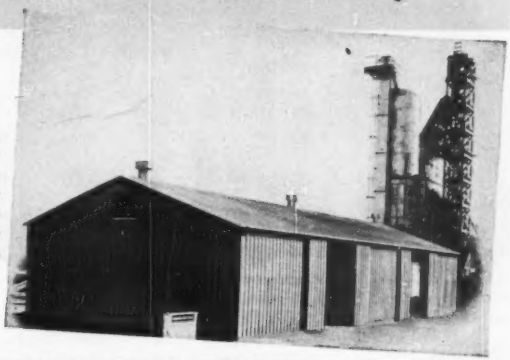

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MEN AND JOBS

SAFETY RECORD—Construction men responsible for erecting the permanent buildings at the Atomic Energy Commission's Argonne National Laboratory near Chicago received a plaque in recognition of their safety performance in 1950, when they reduced an already low accident rate by 50 percent. W. R. Engstrom, (front center left) Austin Co. vice-president and its project manager at Argonne, accepted the award from D. J. Casey, front center right, director of the Atomic Energy Commission's Engineering Division at Chicago. Officials in the group are, left to right, C. Ken Weidner, chief engineer, and Robert H. Klett, security and safety coordinator, for the Special Construction account administered by the University of Chicago; Engstrom; A. L. Fritz, Austin safety engineer; E. J. Carlson, Weidner's chief deputy; Casey; W. L. Slattery, Austin general supt., and M. S. Aronstom, AEC's Chicago health and safety chief.

New appointments

Highway Departments

A. F. Noble has joined the bridge dept. of N. C. highways.

S. H. Shearin is in the rights-of-way dept. of N. C. highways, succeeding **D. A. Hansen,** resigned.

G. P. Hogan, resident engineer at Oxford for N. C. highways, replacing **W. G. Shull.**

John R. Curry succeeds **J. R. Earl** as engineer of Antlers div., Oklahoma highways.

Frank L. Truel is secretary and prequalification officer of the Oklahoma highways.

W. W. Alcoke, acting head of 6th Kentucky Highway Dist.

B. T. Moynahan, acting rural roads commissioner Kentucky highways.

Earle V. Miller, Idaho highway engineer and **James Reid** asst. engineer.

C. A. Upchurch, administrative assistant and public relations director, N. C. highways.

Thos. H. Cutler, engineer-mgr., city road development, Kentucky.

Changes in Illinois Div. of highways, at Springfield: **C. B. Cunningham,** to be assistant district engineer; **H. L. Brantley,** to be design engineer; **S. E. Patterson,** to be materials engineer; **R. R. Shewmaker,** to be maintenance engineer; **H. B. Emery,** to be assistant traffic engineer; **R. S. Cooke,** to be assistant construction engineer; and **H. C. Bright,** to be assistant research engineer.

State, city and county

Gov. John S. Fine of Pennsylvania reelected president of the General State Authority, the building corporation.

Frank J. Fuller to be associate engineer N. Y. State Dept. of Public Works.

Jas. W. Wilson, director of Lower Mainland Regional Planning Board, Vancouver, B. C.

John J. Farrell, general supervisor of Building Construction in the office of N. Y. State architect.

C. W. Brinck, Jr., will supervise all sanitary engineering work for the Montana State Board of Health.

Stephen L. Van Norden has been appointed county director of civil defense for Pinellas County, Fla., in St. Petersburg.

Col. Gerald S. Andrews, 48, top expert in air mapping and surveying, has been appointed surveyor-general and director of surveys and mapping for British Columbia, succeeding Frank O. Morris, who has retired after 44 years in provincial service.

Industrial and Commercial

Robt. H. Harleston, Jr., has been appointed traffic engineer for the Association of Casualty and Surety Companies.

H. S. Christensen has joined the staff of E. A. Irish, Contractor, Los Angeles, as superintendent of underground construction.

De Gaspe Beaubien, civil engineer, Quebec, has been made a member of Canada's National Research Council.

Kenneth S. Watson, coordinator of industrial waste treatment for the General Electric Co.

C. L. Willis is chief engineer for the Rust Construction Co. of Pittsburgh, Pa., on the construction of a $5,800,000 addition to the Halifax Paper Co.'s plant at Roanoke Rapids, N. C.

Corps of Engineers

H. M. Lindsey, project engineer for Big Spring Air Force Base, Texas.

Col. John R. Hardin, office of the Chief of Engineers, Washington, D. C.

Resignations

Ralph White, engineer of Fort Garry, Man., has resigned.

O. H. Abernethy has resigned as secretary and prequalification officer of the Oklahoma State Highway Commission.

Dave Stansel has resigned as asst. personnel director of the N. C. Highway Dept. to become contact man between N. C. State College and the engineering industry.

L. H. Hinshaw, office engineer, Greensboro, N. C. highways, has resigned.

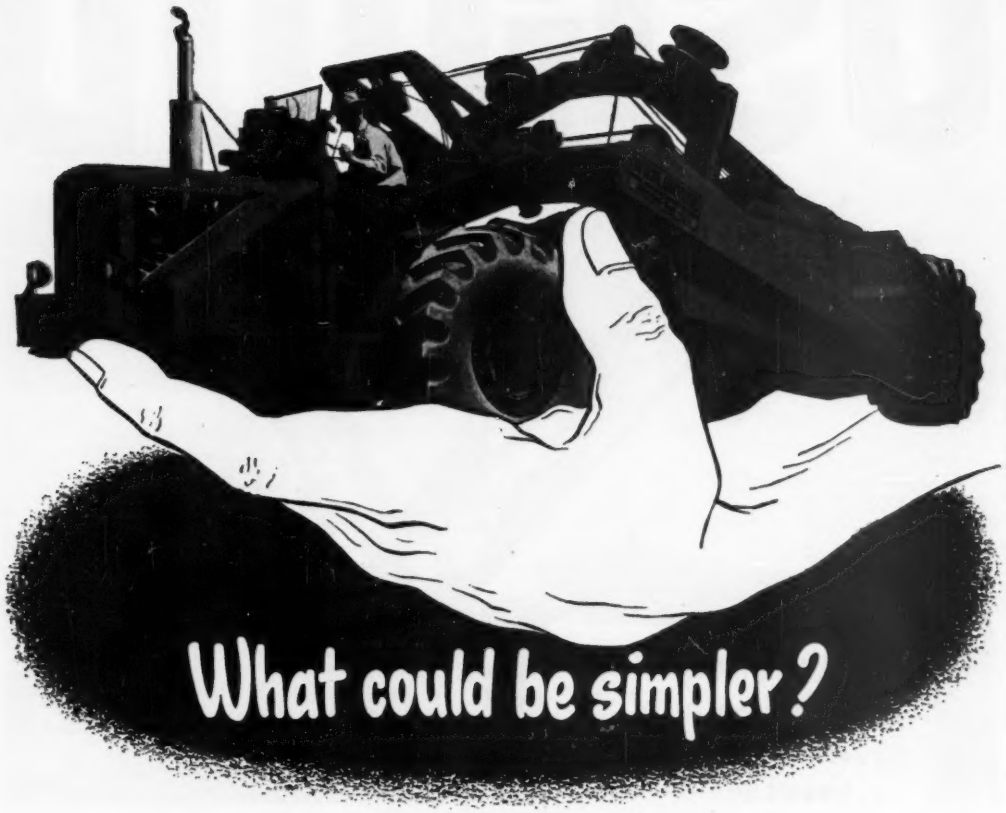
Dale Brown, Howard County, Ind., highway supervisor, Kakomo.

Honors

Granville M. Read, chief engineer of the E. I. du Pont de Nemours and Co., degree of Doctor of Science from the University of Delaware.

Prof. K. W. Riddle, director, evening college and diploma school, Drexel Institute of Technology, received the Mary S. Irick Drexel gold medal award for exceptional service to the institute last year.

W. G. Sloan, co-author of the Pick-Sloan plan of the army engineers and reclamation bureau for development of the Missouri river basin, received an honorary degree of doctor of engineering June 11 from Montana State college at Bozeman.



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EDUCATION, RESEARCH

SOLDIERS LEARN EARTHMOVING—Corps of Engineers soldiers at Fort Leonard Wood, Mo., recently received basic instruction in how to operate modern earthmoving tractors and scrapers. Caterpillar Tractor Co. provided 14 operating and earthmoving instructors. Soldiers in the program were divided into six three-day sessions with both officers and enlisted men participating. Each class had about 50 students. About 16 hours of classroom work and eight hours of equipment demonstration were presented to each student. Class work consisted of fundamental earthmoving problems with such training aids as illustrated charts, movies, instruction kits, and earthmoving calculators. This Armed Forces Training School will visit 14 Army installations this year under Caterpillar Tractor Co. sponsorship.

Extensive study of classroom fenestration

The study of the arrangement and proportioning of windows in classrooms is a major task undertaken by the Pittsburgh Corning Daylighting Research Center at Pittsburgh, Pa. This work involves theoretical studies, the application of daylighting techniques in model classrooms, and the examination of schools throughout the country.

Reports from hundreds of schools which have utilized glass block fenestration testify that light-directing blocks are doing an excellent job of brightness control and daylight distribution.

Since the principle reason for using such glass blocks in classrooms is to eliminate glare, deliver daylight where it is wanted, and help create a comfortable visual environment for pupils and teachers, the research center says that it is essential that the vision strip be designed so that it does not destroy the effect of the glass block performance. Vision strip shading and interior decoration are most important.

Further conclusions are that vision strip glare cannot be eliminated by using "glare reducing" glass in the vision strip. Most of the available obscure glasses intensify the glare problem. The use of transparent heat-absorbing glasses helps reduce heat load but makes only a slight reduction in the glare and is not, by itself, an adequate solution.

Satisfactory vision strip brightness control may be achieved on any elevation by translucent draw drapes; translucent roller shades; venetian blinds; fixed shade screens; fixed louvers; adjustable louvers. Regardless of the vision strip shading method, the block panel sill and vision strip head should be kept at least 5 ft 10 in and not more than 6 ft 12 in above the finished floor. For shading simplicity, the height of the vision strip should be kept to a minimum.

High reflectance surfaces are essential to proper prism block performance, good daylight utilization, and to a comfortable classroom environment. Prism blocks direct daylight to the ceiling and upper walls. The ceiling must have a maintained reflectance of at least 70 per cent to make proper use of this light directing characteristic.

Ohio State to start new sanitary option

The Ohio State University, Columbus, will launch a new curriculum in sanitary engineering next fall. This option in civil engineering will lead to a B.C.E. or a B.C.E. plus an M.S. in five years.

Designed to prepare the student for professional work in environmental control, the new course of study is set up so as not to neglect other phases of civil engineering. Sanitary majors will not branch off until the third year, when they will study bacteriology, quantitative chemical analysis and environmental sanitation as prerequisite to a required nine-week summer training program prior to the fourth year—three weeks at surveying camp and six in a field training program of the Ohio Department of Health.

Fourth and fifth years include advanced sanitary engineering subjects. Students who wish can gather 45 hours of graduate credits during these two years for an M.S. in addition to the B.C.E. degree. Ohio State now divides its school year into three quarters.

Faculty News

George Granger Brown has been appointed dean of the college of engineering, University of Michigan, in succession to Ivan C. Crawford, who is retiring.

Charles E. Renn has been appointed to a full professorship in a sanitary engineering at Johns Hopkins University, Baltimore.

Walter H. Gale is now secretary of the Massachusetts Institute of Technology, Charles H. Norris has been promoted to a full professorship in the department of civil and sanitary engineering, and Lloyd Rodwin from assistant professor to associate in city and regional planning.

Promotions at N. C. State College: J. O. Litchford and F. F. Funk to assistant professor civil engineering; R. K. Shumaker to associate in engineering research; and W. C. Bell to research professor in engineering research.

Milton G. Young has been named acting dean of the University of Delaware School of Engineering during the leave of absence of Dean David L. Arm, who will be associated with the staff of E. I. du Pont de Nemours and Co. until April, 1952.

Illinois—Frank C. Foley, Madison, Wis., recently named research professor of geology, University of Illinois, will head the groundwater and geophysical explorations of the Illinois State Geological Survey. He will spend the major portion of this time studying the groundwater resources of the state of Illinois, and will also conduct graduate seminars in research of groundwater supplies.

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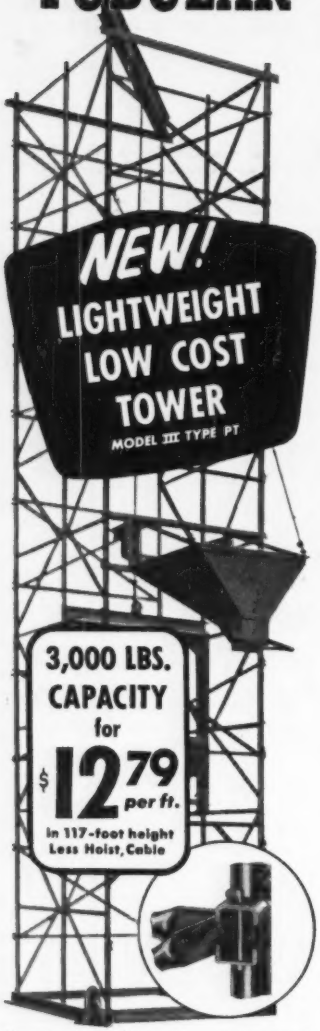

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MEETINGS

Philip N. Rugg has been elected president of the Engineering Societies of New England, Inc., to succeed Kerr Arkinson in June. Mr. Rugg is a Massachusetts Institute of Technology graduate, class of 1927. He is supervisory engineer in the technical services division of the Boston Edison Company's electric and steam sales department, and for the past 13 years has been secretary-treasurer of the Boston section, American Welding Society.

The Northwest conference of the American Society of Civil Engineers has elected Guy H. Taylor, of the firm of Moffatt, Nicol & Taylor, Portland, president; James E. Travis, assistant manager of Hanford Works, Richland, Wash., vice-president; and H. Loren Thompson, consulting engineer of Portland, secretary-treasurer.

Harold E. Deardorff, vice-president of Dayton Power & Light Co., has been elected president of the Engineers Club of Dayton, Ohio. Others elected: Charles W. Wright, vice-president; James P. Malmstrom, secretary; and Richard S. Gaugler, treasurer.

Of special interest to many engineers will be the program of the newly-organized Engineering Mechanics Division. There will be a New Jersey Turnpike luncheon. This will start a series of sessions dealing with the new turnpike being built so rapidly, climaxed by a bus excursion over the route, the length of the state of New Jersey.

Officers of the Montana Society of Engineers are O. A. Dingman, president; M. H. Gidel, first vice-president; D. G. Shevalier, second vice-president; R. D. Piper, secretary-treasurer; G. D. Sheckler, H. C. Dickinson and F. C. Jaccard, trustees.

Toledo, Ohio, chapter of the Ohio Society of Professional Engineers has elected Eugene V. Newman, president; Alfred H. Samborn, vice-president; John R. Alspach, secretary, and William F. Kramer, treasurer. Elmer R. Brigham, Norman R. Drulard, Edward J. Hunter, and Louis H. Lewandowski two-year terms on the board of directors.

Fort Wayne, Ind., Engineers Club has elected S. W. Winje, president; C. J. Herman, vice-president; Louis F. Mayle, secretary; and Marion Halleck, treasurer. Lloyd J. Docktal and John F. Rosencrans were elected directors.

The District 10 Council of the American Society of Civil Engineers was recently held in Charlotte, N. C. Arrangements were made by Col. J. Norman Pease, vice-chairman, and Channing B. Brown, secretary-treasurer. Delegates from all except one number section in District 10 were present at the meeting. Also present were William Roy Glidden, vice-president Zone II of the American Society of Civil Engineers, and Edmund Friedman, director of District 10.

John F. Tribble, past president of the Alabama Section, A.S.C.E., was selected chairman for the 1952 Council meeting and in taking over his duties he extended the invitation of the Alabama Local Section as the host section for the council meeting next year.

Robert E. Willems, Akron, Ohio, superintendent of street repair and sanitation, has been elected president of the Street Maintenance and Sanitation Association of Ohio. Others elected were: C. E. Brokaw, Cincinnati highway maintenance superintendent, vice-president; and Alfred Peterson, Youngstown superintendent of streets, secretary-treasurer.

The Junior Branch of ASCE's Metropolitan Section (N. Y. City) has elected, President, R. K. Lockwood; 1st vice-president, J. F. Molloy; 2nd vice-president, P. W. Freitag, Jr.; secretary, V. A. Smoots; treasurer, J. E. Fisher.

H. D. Jones has been elected secretary and treasurer of North Carolina Society of Safety Engineers.

CALENDAR

National Constructors Association, Labor and Executive committees, Edgewater Beach Hotel, Chicago, Ill., July 11-12.

Bureau of Reclamation, annual programming conference, Wenatchee, Wash., July 23-27.

National Conference on Prestressed Concrete, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 14-16.

New England Water Works Association, Hotel Statler, Boston, Mass., Sept. 10-12.

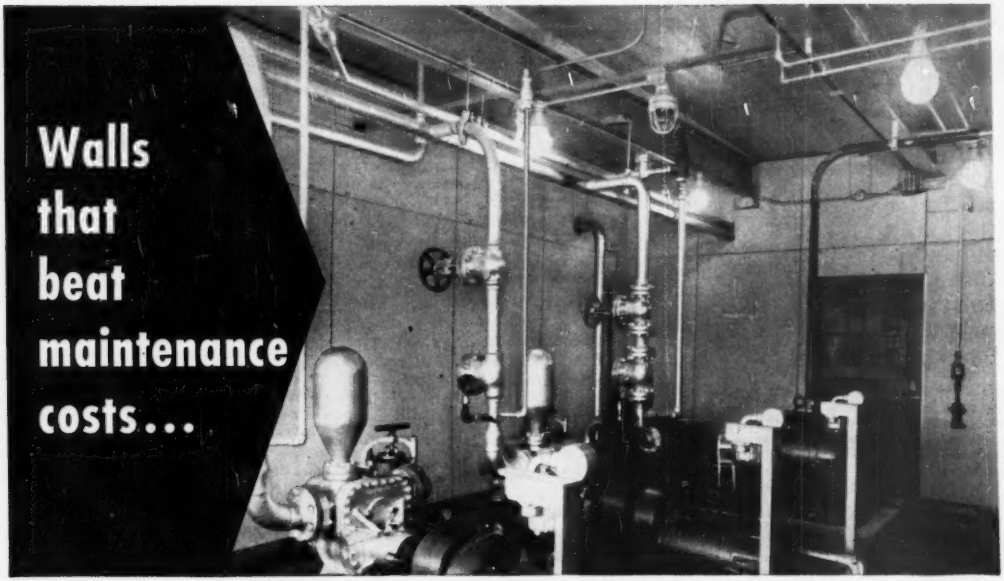
N. Y. section American Water Works Association, fall meeting, Whiteface Inn, Lake Placid, N. Y., Sept. 13-14.

Public Works Congress and Equipment Show, Memorial Bldg., Detroit, Mich. Sept. 16-19.

Pennsylvania section, American Water Works Association, Bellevue-Stratford Hotel, Philadelphia, Pa. Sept. 19-21.

9th International Road Congress, Permanent International Association of Road Congresses, Lisbon, Portugal, Sept. 24-29.

Walls that beat maintenance costs...



Water treatment room in large utility plant. Walls are "Century" APAC, 5/8" thickness.

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In the water treatment room above you see how to build walls that won't need maintenance: Use "Century" APAC—Keasbey & Mattison's versatile asbestos-cement structural sheet. APAC can fill nearly all your surface covering needs... interior walls and ceilings... exterior walls... on new structures and modernizations.

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OBITUARY

Edward L. Moreland, 65, of Wellesley Mass., retired dean of engineering and vice-president of the Massachusetts Institute of Technology, who also was a partner of Jackson & Moreland, consulting engineers of Boston, died June 17. He was a 1905 graduate of Johns Hopkins University and took a master's degree in science at M.I.T. in 1908. The same year he became associated with the consulting firm of D. C. and Wm. B. Jackson, and in 1919 a member of the firm of Jackson & Moreland, which firm was in charge of electrification of the Great Northern Ry. and the Lackawanna, R.R. suburban electrification in New Jersey.

Bernard L. Gabriel, 74, a civil engineer in Binghamton, N. Y., for many years, died June 8. He was a graduate of Columbia University. He served as construction engineer when the N. Y. State Barge Canal was rebuilt. He went to Binghamton 40 years ago and was engineer in charge of numerous projects in that area.

Harvey Z. Kline, 78, who patented a method for making cement blocks and operated the Kline Stone Block Co., Indianapolis, Ind., for 15 years, died June 6. The blocks were used in construction of schools and churches throughout the state.

Lincoln B. Breedlove, 63, one of the engineers who built the Ford plant at River Rouge, Mich., died at Martinsville, Ind., June 12. He was a graduate of the University of Illinois.

Eugene Couch, 76, a Dallas, Tex., engineer for 50 years, died there June 12. He held degrees in civil and mechanical engineering from Texas A. & M. College. He was assistant director of the Dallas department of public works for 15 years before retirement in 1940.

Walter C. Campbell, 75, for 26 years superintendent of the Dover, N. H., water department, died at Madbury, N. H., on June 13.

Albert L. Lash, 50, president of the George A. Caldwell Waterworks Co. supply house, Boston, Mass., died in Quincy, Mass., June 15.

Amberson R. Retzert, 60, civil engineer for the city of Columbus, Ohio, died June 9 in an auto accident in Canton.

R. C. Ashton, Chicago division engineer for the Housing and Home Finance Agency, died May 29. A graduate of the University of Cincinnati, he spent his career in railroad construction and public works. He was associated with government work for the last 16 years.

William Marshall Johnson, 47, of Albemarle, N. C., claims engineer with the North Carolina Highway Commission, died June 11. He had been connected with the commission for 23 years and prior to that was engineer for Buncombe County at Asheville, N. C.

Albert H. Hinkle, 71, Columbus, Ohio, an expert in highway paving and maintenance, and division director of the Asphalt Institute, Columbus, died June 8. He was graduated in civil engineering in 1907 from Ohio State University. He was a former deputy county surveyor in Darke County and an assistant in the civil engineering department at Ohio State University. Organizer of the maintenance department of the Ohio State Highway Department, he was deputy highway commissioner from 1911 to 1919. In 1919 when the Indiana State Highway Commission was established, he became its first superintendent of maintenance until May, 1933. He also was Indiana's first Public Works Administration director, in 1933 and 1934, then moved to Louisville. In 1939 he became district engineer for the Asphalt Institute in Cincinnati, and became division director when the office was moved to Columbus.

Howard B. Kenyon, 82, civil engineer and organizer of the Howard Kenyon Dredging Co. and the Dameron & Kenyon Dredging Co., died at Houston, Tex., June 12. He retired 20 years ago.

Charles H. Hitchcock, 78, a retired civil engineer for the Reading Co. died in Philadelphia, Pa., June 12. He had been with the company 40 years when he retired in 1940.

Frederick L. Hancock, 80, city engineer of Quincy, Ill., from 1900 through 1917, died May 31 in Denver, Colo. He was also assistant city engineer at Fort Madison, Ia. He went to Denver in 1918 and worked there as a civil engineer until his retirement in 1940.

Phil McCarty, 86, chief engineer for the Denver water board more than 30 years ago, died in Denver on June 3. He was also Denver's chief building inspector and served several terms in the Colorado Senate and House of Representatives in the 1920's.

LABOR

Building wage rises get priority

The question of deferred wage increases got top priority last week when the new Construction Industry Stabilization Commission took its oath of office and started work.

The CISC, an arm of the Wage Stabilization Board (ENR June 7, p. 24) is a special 12-member board established to administer wages in the construction industry.

Deferred increases are as common in construction as are cost-of-living escalators (already approved by WSB) in the automobile industry. In fact, WSB's failure to approve a deferred increase of 10 to 12½ cents an hour due construction workers at Oak Ridge was behind the strike which began there the day the 12-man CISC was sworn in. (Construction work at the Oak Ridge National Laboratory and the Oak Ridge townsite virtually was shut down last week, as 1,300 AFL building craftsmen protested the failure to obtain the higher rates.)

A similar strike occurred at Oak Ridge May 1 when an increase promised last fall (before wage controls began) was to go into effect. But WSB approved the increase only for employees of Maxon Construction Co. working on the K-31 gaseous diffusion plant construction.

WSB did not want to establish policy on the question of deferred increases at that time, however, and used another justification for the above-ceiling increases for Maxon workers: That the K-31 plant was built at TVA wage scales, and Maxon's wages did not upset the historical pattern.

But, WSB did not approve increases for workers of 16 other Oak Ridge contractors, and this became CISC's first case.

• **CISC makeup**—WSB also announced last week the final makeup of the CISC. Tripartite in nature, it includes groups representing industry, labor and the public. Members are:

Industry—J. D. Marshall, of Associated General Contractors; E. W. Dunn, Hartley, Iowa, consulting engineer; H. R. Cole, of the Tile Contractors' Association; William J. Cour of the Specialty Contractors Association.

Labor—Richard Gray, of the AFL building trades; Daniel Tracy, of the electrical workers; O. William Blaier of the carpenters and John W. Garvey of the hod carriers.

Public—T. J. Kalis, labor department; Archibald Cox of Harvard; Joseph Shister of the University of Buffalo, and Russell E. Cooley of the defense department.

Big labor groups stay out of defense

Although the labor men now going into government posts (ENR June 14, p. 77) are looked upon as moderates, it should be kept in mind that large and influential blocs of labor are not taking any part in cooperation with the mobilization plans.

These groups include the AFL's two most powerful unions—carpenters and teamsters; and John L. Lewis' huge United Mine Workers, with its 600,000 members.

"Big Bill" Hutcheson, president of the Carpenters (also 600,000 members) has blasted out against controls of all kinds. The teamsters—with about 1,000,000 members—haven't said anything openly against controls, but West Coast Boss Dave Beck has criticized pet administration projects—such as socialized medicine. Lewis also has inveighed against controls.

Other big unions outside the defense setup include the four railway operating brotherhoods — trainmen, firemen, engineers and conductors; left-wing unions kicked out of CIO, and many of the independent unions.

Labor Briefs . . .

• **End atom-plant strike**—Operations at the AEC's uranium separation plant near Paducah, Ky., have been resumed, after a one-day strike of some 3,000 construction workers. Work halted when union truck drivers set up a picket line at one plant entrance, and building tradesmen refused to cross the line. Truckers were complaining about poor union status of one subcontractor; plumbers, steamfitters and electricians joined to complain against layoffs on overtime days. Truckers returned to work after conferences with F. H. McGraw Co., project contractor.

• **No city raises**—Minneapolis city councilmen have turned down a request for wage boosts from city-employed building and construction workers. Councilmen voted to "take under advisement" the plea of workers that benefits accruing under city payrolls (paid holidays, sick leave and vacations) couldn't be counted as take-home pay, and that actual pay be increased to equal that of craftsmen working for private contractors.

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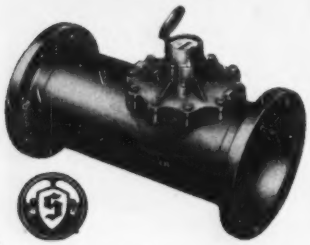

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CONSTRUCTION BUSINESS

Move to put top limit on expansion

Washington's mobilizers are moving to fix ceilings on future expansion of basic industry—spurred through the medium of quick amortization of costs. Mobilization Boss Charles E. Wilson promised last week to come up with a report for the House expenditures subcommittee.

Any such move to put a top limit on expansion for basic materials production is of major importance to construction. The "quick amortization" provisions of the defense act (ENR Apr. 19, p. 27) have been credited as the chief spur behind 1951's great boom in industrial construction—which last week alone had put industrial work 313% above a year ago (ENR June 21, p. 17).

The controllers began handing out aids to expansion last December, but they haven't yet been able to come up with any size-up of the limits of expansion they might have to set. The only Washington estimate so far publicized is a staff report by the Joint Economic Committee, which estimated that total facility expansion through use of certificates of necessity might range from $10 to $12 billion. But some $6 billion of such expansion had already been approved by May 25, and applications were pending for $18 billion more.

• **Not so easy**—In the early stages the theory was that it was safe to go ahead with certificates for new capacity in steel, aluminum and other basic raw materials. But now, Wilson and his aides are under pressure to show that they have some logically developed, balanced estimate of the economy's needs for these basic materials.

For one thing, they are now having to justify giving a certificate to one company and refusing it to a competitor. For another, they are going to have to allocate under the Controlled Materials Plan the metals and other materials actually needed to build the plants they have certified as necessary for the defense effort.

There's another angle too: Sen. O'Mahoney's Joint Committee on the Economic Report has just issued a report on the need for industrial dispersal, suggesting (among other things) that certificates be issued with an eye to construction of plants in less vulnerable areas.

• **The trick**—Right there is the joker in the situation:

Handing out certificates of necessity has been relatively painless for the mobilizers—it was only a legal tax matter. But now they must justify their allotments of scarce materials for which other users are clamoring.

Right now, decisions on allocations limit the size of the expansion that's possible, and there's no way of escaping the decision.

• **Where are we?**—The fact is that the controllers really don't know where they stand. Witness the fact that a few weeks ago, Defense Production Administration officials sent out queries to all holders of certificates of necessity asking for detailed information on progress of construction.

Such reports—to be compiled quarterly—will keep the defense organization on top of construction actually under way. But as to future approvals for industrial expansion, there is a vast lack of information, which stems from the fact that the controllers themselves don't know their goals.

Agreement ends pricing suit against steel

Both the Federal Trade Commission and 90 U. S. steel makers got something out of a tentative order to which both sides agreed last week, but observers were inclined to think FTC got the bigger end.

The agreement in effect ends litigation that dates back to 1947 on charges of price fixing, and ends the prospect that the case might drag through federal courts for another five or six years.

Among other things, the American Iron and Steel Institute and the steel makers are prohibited by the agreement from "cooperating in any planned course of action to fix prices at which steel products shall be quoted or sold"; are not permitted to enter any base price agreements for steel products; or any agreements not "to quote or sell and deliver any steel products fob at the plant of manufacturer."

However, the steel makers got into the agreement two things: They do not concede the truth of any findings or charges of FTC; they save themselves further court wrangling.

Significantly, also, FTC agreed that it "is not considering evidence of uniformity of prices . . . of two or more sellers at any destination or destinations alone . . . as showing violation of the law"; and it said further "it is not acting to prohibit . . . delivered pricing or freight absorption as

such when innocently and independently pursued, regularly or otherwise, with the result of promoting competition."

However, observers saw one joker in the agreement: After the terms of the order become effective (in 90 days), the steel companies have agreed not to contest FTC's order in the courts. On the other hand, FTC is apparently perfectly free to haul the steel companies before a federal court of appeals if it finds evidence that the companies are violating terms of the order.

New-type bonds promise more public housing

Details of a new-type public housing bond that will be the producer of some $500 million of new public housing funds in the next year are now being explained to brokers and bond markets.

The new bonds—in $1,000 denominations—will appear on the market July 17. At that time, more than $160 million in tax-exempt obligations of 58 local housing authorities in 20 states and the Territory of Hawaii will be authorized for sale.

According to John Taylor Egan, commissioner of the Public Housing Administration, the new bonds are to be issued under authority of the 1949 federal housing legislation. The bonds are not revenue bonds—they are issued only by cities that meet certain credit standards stipulated in the act of 1949.

Security will include all revenues from rents (after payment of maintenance and operating costs) and an obligation on the Public Housing Administration, which is required to pay into the fund whatever amount may be required to pay the interest and principal due.

Because of this special status, the new bonds are looked upon in financial circles as binding on the government in the same manner as regular Treasury bonds. Bonds are to be tax-exempt.

At present, Egan says, 44 states and 600 communities have plans for this type of housing financing—which makes possible low-cost rental housing by excluding the amortization of the structures.

The July 17 sales will be primarily to refund loans made by communities to start construction. Issues that will follow will be to raise new money for construction—PHA thinks nearly $500 million will be sold before the end of the first half of 1952.

New issues will be released to buyers at six-month intervals.

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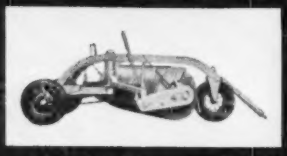

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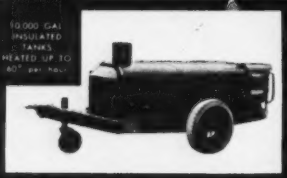

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Construction business . . .

UNIT PRICES BID BY CONTRACTORS

Flood control structures, Mapleton, Iowa

The construction of 22 flood control structures on the Habinck Minor-Watershed Parts A and AB in the Little Sioux Basin, west of Mapleton, Iowa, was awarded May 9, 1951, to the low bidder by the U. S. Dept. of Agriculture, Soil Conservation Service, Milwaukee, Wisc. Five bids, 22% apart, were presented. The low bid was 1.5% under the second bid.

Wage rates to be paid are: common labor, $1.525; semi-skilled, $1.60 to $1.90; and skilled labor, $1.95 to $2.15.

Bidders were:

1 Brown & Leguil, Mankato, Minn. (Contract)	$391,621.87
2 Godberson-Smith Constr. Co., Ida Grove, Iowa; & Brueck Constr. Co., Battle Creek, Mich.	397,272.74
5 Dave Gustafson & Co., Inc., Sioux Falls, S.D.	509,074.84

Items	Quantity	Unit price 1	Unit price 2
Clearing & grubbing, Part A ..... job	10,837.49	$1.00	$1.00
Removal, structure Part A ..... ls	.....	500.00	437.95
Fence, Part A, 1 lin rod	1,093	0.40	1.00
Part AB ..... 1 rod	195	0.40	0.90
Excav, structure, Part A ..... cy	29,891	1.10	1.00
Part AB ..... cy	1,989	1.10	1.00
Earth fill: Cl II, Part A ..... cy	276,783	0.247	0.27
Part AB ..... cy	24,195	0.247	0.26
Cl III, Part A ..... cy	197,518	0.20	0.215
Part AB ..... cy	5,685	0.20	0.23
Cl IV, Part A ..... cy	10,598	0.15	0.19
Water for earth fill Part A ..... Mgal	795	3.00	1.00
Part AB ..... Mgal	80	3.00	1.00
Diversion ditches, Part A ..... lf	1,210	0.30	0.90
Reinforced conc, Part A ..... cy	2,281.56	52.50	50.50
Part AB ..... cy	264.27	52.50	50.50
Furn & place steel reinf, Part A ..... lb	281,431.2	0.16	0.16
Part AB ..... lb	33,479.6	0.16	0.16
Spillway — reinf conc culvert pipe, Part A Extra strength, 24" dia ..... lf	156	7.75	6.50
30" dia ..... lf	150	8.50	8.00
Standard strgth 36" dia. ..... lf	288	11.50	11.00
42" dia. ..... lf	48	14.75	14.00
Spillway, corrugated metal pipe, asphalt coated, paved invert —Part A—18" dia ..... lf	63	7.00	6.50
Spillway, CMP, outlet Part A, 24" dia ..... lf	24.1	6.50	7.00
36" dia. ..... lf	48.2	15.00	14.00
Drainage: CMP, 8" dia, Part A lf	26.4	4.75	4.50
Hel CMP, perforated, Part A, 8" dia, 16 gage ..... lf	160	6.75	7.00
6" dia, 16g ..... lf	1,332	7.25	7.00
Part AB, 6" dia, 16 gage ..... lf	202	7.25	7.00
Helical CMP—Part A, 8" dia, 16 gage lf	196	3.25	3.00
6" dia., 16 gage lf	811	2.25	2.50
Part AB, 6" dia, 16 gage ..... lf	119	2.25	2.50
Perf, fiber pipe 4", Part A ..... lf	514.6	3.75	4.00
Part AB ..... lf	70.2	4.50	4.00
Bank drains, Part A cy	320.1	5.00	5.00
Part AB ..... cy	31.6	5.00	5.00
Wall drains, Part A cy	55.3	10.00	10.00
Part AB ..... cy	7.3	10.00	10.00
Trash racks & guard rails, Part A ..... ls	.....	5,000	5,000
Part AB ..... ls	.....	1,000	1,000
Collector — perf fiber pipe, 4" Part A ..... lf	64	5.25	5.00
Part AB ..... lf	16	5.25	5.00
Pipe, steel-galv, 1½", Part A ..... lf	691.2	2.75	2.50
Part AB ..... lf	162.4	2.75	2.50
Cock, iron-galv, 1½", Part A ..... ea	4	35.00	35.00
Part AB ..... ea	1	35.00	35.00
Automatic drainage gate, Part A ..... ea	4	30.00	30.00
Seeding & stabilizing crop, Part A ..... A	69.8	20.00	50.00
Part AB ..... A	6.2	20.00	48.00
Reseeding, Part A ... A	34.9	20.00	30.00
Part AB ..... A	3.1	20.00	29.00
Sodding, Part A ..... sy	3,121	0.40	1.00
Sprigging—reed canary grass, Part A ..... A	12.5	75.00	100.00
Part AB ..... A	0.8	75.00	100.00
Total Part A	$358,681.13		$364,515.81
Total Part AB	32,940.74		32,756.93
Grand total	$391,621.87		$397,272.74

Excavation for Central Valley Project, Calif.

Under bidding the engineer's estimate by 16% and the second low bid by 77.4%, Guy F. Atkinson Co. of South San Francisco, Calif., was low bidder for the earthwork for the Folsom powerplant, etc., Central Valley Project, Calif. The four bids received May 29 by the Bureau of Reclamation were 100.10% apart.

The job site is located in the vicinity of Folsom City, which is situated west of Sacramento, Calif. Completion of work will be in accordance with the following schedule; (a) Excavation for warehouse and penstock fabricating area—60 days; (b) Completion of access road—180 days; (c) Excavation for powerhouse area—300 days; (d) The remainder of the work—450 days. In the event the work is not completed within the specified time the following damages will be paid by the contractor: (a and b) $50 per day; (c) $200 per day and (d) $100 per day.

Minimum wage rates are: common labor, $1.55; power equipment operators, $1.84 to $2.59; truck drivers, $1.58 to $2.04.

Bidders included:

1 Guy F. Atkinson Co., South San Francisco, Calif	$1,463,721
2 Macco Corp. & Morrison-Knudsen Co., Inc., Paramount, Calif	2,569,934
4 Peter Kiewit Sons Co., San Francisco, Calif	3,065,993
Engineer's estimate	1,736,039

Items	Quantity	Unit prices 1	Unit prices 2
Excavation: For tailrace channel, first 307,000 cu. yd ..cy	307,000	$2.30	$3.72
Over 370,000 cu. yd ..cy	307,000	1.00	2.20
For power-plant areas, first 121,500 cu. yd ..cy	121,500	1.76	3.27
Over 121,500 cu yd ..cy	121,500	1.30	2.35
For tailrace channel access road ..... cy	43,600	1.15	1.60
Placing gravel surfacing ..... cy	3,900	5.00	3.50
Furnishing & erecting timber in guardrails & bulk head ..... Mbm	3	350.00	530.00
Furnish & lay 24" diam corrugated metal pipe lf	511	6.00	7.00
36" ..... lf	80	10.00	22.00
Furnish & construct barbed-wire right-of-way fence ..... mi	1.71	2,500	3,700

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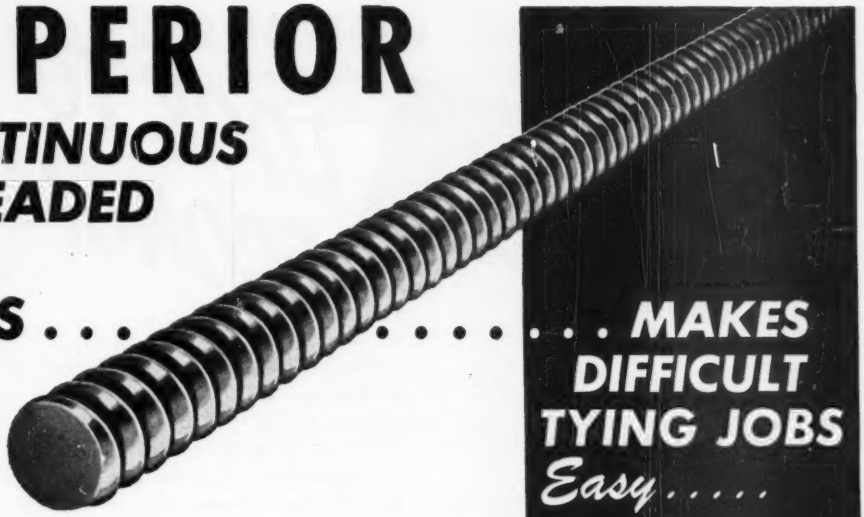
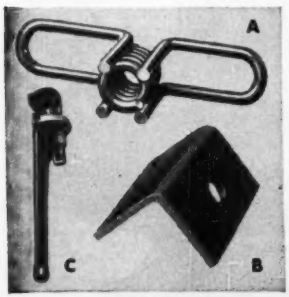


Superior Continuous Threaded Coil Rods, with or without Coil Wing Nuts and Corner Brackets, are a valuable supplement to Superior Coil Ties and standard working parts when job conditions are unusual or difficult.

In three typical applications, shown at the right, these Continuous Threaded Rods are used; (1) to tie form corners; (2) as an anchor rod tie down and as coil bolts; and (3) as a coupling for two coil ties providing an adjustable form tie.

Available in ½", ¾", and 1" diameters and in any length up to 10 ft., Superior Continuous Threaded Coil Rods in quantities can be cut to length on the job with a heavy-duty hand Coil Rod Cutter.

Superior Continuous Threaded Coil Rods are the answer to unusual or difficult tying problems. When you use Superior you are assured of the *best* in design, material, and workmanship.



A-COIL WING NUTS
Coarse helix coils form the threads. Easily applied and removed from rod. Develops maximum capacity of rods.

B-CORNER BRACKET
An *exclusive* Superior feature. Provides simple, efficient method of tying form corners and bulkheads.

C-SPECIAL COIL ROD WRENCH
Heavy-duty Stillson type wrench with special jaws for gripping and turning Coil Rods with least damage to threads.

ON FORM CORNERS
FOR ANCHORAGE
AS AN INTERNAL TIE
Two Coil Ties and a length of Coil Rod make an adjustable form tie and spreader.

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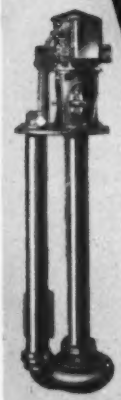
New York Office: 1775 Broadway, New York 19, N.Y.
Pacific Coast Plant: 2100 Williams St., San Leandro, Calif.

REQUEST A COPY OF OUR NEW CATALOG 500 . . .
It contains a valuable table for spacing studs, wales, and form ties.

pumping sewage?.... LOOK TO ECONOMY!



Sump Pumps
Capacities to 5,000 G.P.M.
Heads to 120 ft.

Vertical
Non-Clog Pumps
Capacities to 20,000 G.P.M.
Heads to 125 ft.

In severe service, Economy non-clogging pumps installed as long ago as 1911 are still on the job, still giving satisfactory service.

They're built for long life! Construction is heavy and substantial. Rotating parts are rigidly supported to withstand vibration due to the unbalancing of the impeller while passing solids. Impellers, volutes and waterways are of highly developed design, based on long experience in pumping sewage. As a result these Economy pumps represent the ultimate in ability to pass solids, and are highly efficient.

Careful inspection and a complete factory running test assure the hydraulic and mechanical efficiency of every unit.

Mixed-Flow
Volute Pumps
Capacities to 50,000 G.P.M.
Heads to 115 ft.

Catalog No. F249 gives full details on vertical non-clogging pumps; Catalog No. E-345 on sump pumps; Catalog No. F-1049 on mixed-flow volute pumps. For your copies, write Dept. CB-6.

When it's pumps, think of Economy

Centrifugal, axial and mixed-flow pumps for all applications

Economy Pumps, Inc.

DIVISION OF HAMILTON-THOMAS CORP., HAMILTON, OHIO

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

N. Y., Douglaston—SCHOOL—B.A. 7/2—Supt. School Buildings, Design & Construction, 49 Flatbush Ave. Exten., Brooklyn, Zone 1, general construction, plumbing and drainage, heating and ventilating, electrical and lighting fixtures for new P.S. 187, Marathon Parkway from 61 to 63 Aves. Plans deposit general construction $16; plumbing, and drainage, heating and ventilating, electrical and lighting fixtures $6 each set.

N. Y., New York—SCHOOL—B.A. 7/9—Supt. School Bldgs. Design & Constr., 49 Flatbush Ave. Exten., Brooklyn, Zone 1, general construction, plumbing and drainage, heating and ventilating, electrical and lighting fixtures for new P.S. 6, Madison Ave. between 81 and 82 Sts. Plans deposit general $16; plbg. and drainage $6; heating and ventilating $8; electrical and fixtures $8. CD 9/8/48.

D. C., Wash.—HOUSING—B.A. 7/11—National Capital Housing Auth., 1737 L St. N.W., Wash., D. C., 348 dwelling units at Stanton Rd and Alabama Ave. S.E., Stanton Dwellings Housing Proj. DC-1-14. Plans deposit $30. Wm. N. Denton, Jr., 1719 Eye St. N.W., and Frank J. Duane, 1726 M St. N.W., Wash., D. C., archts.

LOW BIDDERS—HEAVY CONSTRUCTION

Allegheny Building Co., 899 Bingham St., Pittsburgh, 3, Pa. Low Bidder. **$167,850**, sewage disposal plant; received no bids, collection system at Dixmont State Hospital. Will re-advertise DIXMONT, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids June 13. CD 5/23.

McShane Contg. Co., 1007 McCartney St., Pittsburgh, 20, Pa. Low Bidder. **$69,659**, imprv. sanitary sewerage sys. at Woodville State Hospital, WOODVILLE, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids June 13. Michael Baker Jr., Inc., Baker Bldg., Rochester, Pa. engr. CD 9/25/47.

LOW BIDDERS—BUILDINGS

▲ **Navarro Corp.**, 6219 Broad St., Pittsburgh, 6, Pa. Low Bidder. **$1,922,000**, general construction, HOSPITAL for continued care patients and constr. dietary bldg. at Hollidaysburg State Hospital, HOLLIDAYSBURG, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids June 13. CD 5/15.

CONTRACTS—HEAVY CONSTRUCTION

Del Balso Constr. Co., 500 Zerega Ave., New York, 61, N. Y. Contract Awarded. **$670,200**, imprv. parks, along west side 1st Ave. between E. 41 and E. 43 Sts. incl. stairways, incl. incidental work in connection with construction of a tunnel in 1st. Ave. in vicinity of United Nations site with ramp approaches etc. between E. 40 and E. 49 Sts., NEW YORK, N. Y. President Manhattan Boro, Municipal Bldg., New York, 7, N. Y. Bids May 15. CD 5/17, under LB.

J. Rich Steers, Inc., 1 Battery Pl., New York, N. Y. Contract Awarded. **$585,000**, 1,000 ft. embankment and culvert to carry 2 tracks of railroad across Matawan Creek; replacing present wood trestle, KEYPORT, N. J. New York & Long Branch R.R., Third Ave., Long Branch, N. J. Awarded June 13.

CONTRACTS—BUILDINGS

▲† **John H. Eisele Co.**, 18 E. 4 St., New York, 17, N. Y. Contract Awarded. Approx. **$1,000,000-$2,000,000**, metallurgical LABORATORY, at 57 acre research site for research for Atomic Energy Commission, Bayside, N. Y. Sylvania Electric Products Co., Inc., 35-05 Bell Blvd., Bayside, N. Y. Carr, Wilcox & Erickson, 80 W. 40 St., New York, 18, N. Y., archts. CC 12/19/48.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

La., Waterproof—B.A. 7/16—Town, drilling water well.

BIDS ASKED—BUILDINGS

Va., Fredericksburg—PHYSICAL EDUCATION, etc.—B.A. 7/3—State of Virginia, Richmond, physical education bldg. and classroom bldg. at Mary Washington College. $600,000. J. Binford Walford & Pendleton Wright, 103 E. Gary St., Richmond, archts. Bids 2/9 rejected. CD 2/15, under LB.

▲ **Ala., Birmingham**—HOUSING—B.A. About 7/6—Birmingham Housing Auth., 600 N. 24 St., 500 unit housing, $4,000,000. Chas. H. McCauley, Jackson Bldg., Birmingham, archts. Extended date. Extended date. CD 2/23.

Ga., Millen—SCHOOL—B.A. 7/10—Jenkins Co., Millen, high school, $300,000. Plans deposit $50. McDonald & Co., Walton Bldg., Atlanta, Ga., archt.

Fla., Tampa—LABORATORY, etc.—B.A. 7/20—Florida State TB Bd., 4 Seabreeze Ave., Delray Beach, central laboratory and laundry at Southwest Florida TB Sanatorium. CD 5/18/50.

SOON LETS CONTRACTS—BUILDINGS

La., Shreveport—WAREHOUSE—Kraft Foods Co., 500 Peshtigo Court, Chicago, Ill., soon lets contract warehouse and office.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Williams Paving Co., Inc.**, 1269 E. Princess Anne Rd., Norfolk, Va. Low Bidder. **$3,448,007**. Extension runways, addnl. imprvs. at Naval Ordnance Test Station, Naval Air Facility, CHINCOTEAUGUE, VA. Pub Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, 11, Va. Bids May 29. CD 5/14.

† **Virginia Engineering Co.**, Newport News, Va. Low Bidder. **$570,000**. Rehabilitation sewerage sys. at Norfolk Naval Shipyard, NORFOLK, VA. Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Apr. 10. CD 3/21.

† **McCrary Plumbing & Heating Co.**, 515 Meeting St., Charleston, S. C. Low Bidder. **$61,897**. Steam distr. system, Spec. 28755, CAMP LEJEUNE, N. C. P. Wks. Office, Bldg. 1005, Marine Barracks, Camp Lejeune, N. C. Bids June 11. CD 5/21.

† **Ferguson Corp.**, Hampton, Va. Low Bidder. **$429,291**. Jet aviation fuel storage, CHERRY POINT, N. C. Dpt. Navy, Pub. Wks. Office, Box 365, Bldg. 12, Naval Base, Charleston, S. C. Bids June 12. CD 5/31.

R. H. Wright & Sons, Inc., P.O. Box 781, Fort Lauderdale, Fla. Low Bidder. **$331,843**. Sea wall and repairing sections sea wall along Roosevelt Dr., Road A1A, Key West, Monroe Co., Job 9051-101, FLORIDA. State Hy. Dpt., Tallahassee, Fla. Bids June 5.

† **M. F. Comer, Bridge & Foundry Co.**, 990 N. W. North River Dr., Miami, Fla. Low Bidder. **$618,252**. Reconstr. Pier D-3, KEY WEST, FLA. Dept. Navy, Charleston Naval Base, Charleston, S. C. Bids June 12. CD 5/31.

Victory Electric Co., 266 St. Michael St., Mobile, Ala. Low Bidder. **$390,615**. Rural distr. lines. Demopolis, Green Co., ALABAMA. Black Warrior Electric Membership Corp., Demopolis, Ala. Bids June 7. CD 5/25.

M. T. Reed Constr. Co., 162 Millsaps Ave., Jackson, Miss. Low Bidder. **$208,000**. Sanitary sewers, imprvs., ROSEDALE, MISS. City, Rosedale, Miss. Bids June 5. CD 5/22.

† **W. R. Aldrich & Co.**, Box 1751, Baton Rouge, La. Low Bidder. **$73,085**. 125,000 cu. yd. semi-compacted earthwork on Red River, Inv. 51-217, Rapides Parish, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids June 7. CD 5/25.

W. T. Burton, Sulphur, La. Low Bidder. **$191,421**. Shell base course 8.32 mi. Sweet Lake Ferry-Creole Hy., State Rte. 931, S. P. 195-01-04, Cameron Parish; **Bacon Sand & Gravel Co.**, Mer Rouge, La., **$82,415**, grav. spot-dumped on Coolinston-Mer Rouge Hy., State Rte. 1557, Purchase Requisition No. 8711A, S. P. 330-01-05, Morehouse Parish, LOUISIANA. State Hy. Dept., Highway Office Bldg., Baton Rouge, La. Bids June 6. CD 5/31.

B. Lewis, Eunice, La. Low Bidder. **$64,500**. 459,800 cu. yd. channel excav., LAKE CHARLES, LA. Calcasieu Parish Police Jury, Lake Charles, La. Bids June 14. CD 6/13, under L.B.

† **E. H. Reeder Constr. Co.**, Co., 2128 Hawes Ave., Dallas, Tex. Low Bidder **$203,930**. Rehabilitation sewer, water and gas sys. at Lake Charles Air Force Base, Inv. 51-64, LAKE CHARLES, LA. U. S. Eng., 606 Sante Fe Bldg., Galveston, Tex. Bids June 6. CD 5/23.

† **Bartley & Binnings**, 433 Gravier St., New Orleans, La. Low Bidder. **$172,423**. Repairing wharf, Spec. 28281, NEW ORLEANS, LA. Officer In Charge of Construction, Naval Station, 600 South St., New Orleans, La. CD 3/30/45.

Boh Bros. Constr. Co., 2400 Cypress St., New Orleans, La. Low Bidder. **$786,725**. Contr. 264-D, 5,520 lin. ft. 12.5 ft. rein.-co.n and covered canal in Paris Ave., NEW ORLEANS, LA. Sewerage & Water Bd., 526 Carondolet St., New Orleans, La. Bids June 6. CD 5/28.

▲ **Mott, Blackburn & Ferguson**, Fredonia, Ky. Low Bidder. **$66,854**. Reconstr. traffic bound limestone surf. 3.931 mi. Coittown-Madisonville Rd., RS 54-900, Hopkins Co.; **$281,819**, traffic bound limestone surf. 14.996 mi. RS 54-900, RS 54-800, RS 54-700 and RS 54-620, Hopkins Co.***Huron Contg. Co., Benton, Ky., **$147,914**, traffic bound limestone 4.223 mi., Union Temple Rd., RS 54-800, Hopkins Co.***H. C. Adams, 968 Delaware St., Lexington, Ky., **$175,255**, bit. surf. Class I 2.176 mi., Corbin-Williamsburg-Jellico Rd., Relief Rte. to Williamsburg, FI 23 (18), SP 118-280, 118-100, 118-60, 118-20, Whitley Co. ***Ballard & Hamilton, Bardstown, Ky., **$102,800**, traffic bound & surf. 5.577 mi. Hector Creek Rd., RS 26-465, Clay Co.

Mulligan Bros., Inc., Greensville, Ky., **$67,761**. 1.573 mi. Providence Slaughters Rd., RS 117-749 Part I, 3.624 mi., Providence Slaughters Rd., RS 117-749 Part II, Webster Co.***Tobin & Hook, Hardinsburg, Ky., **$80,752**, traffic bound limestone 5.173 mi. RS 109-408 and RS 109-308, Taylor Co.***Tye & Wells, Carrollton, Ky., **$77,987**, traffic bound limestone surf. 3.134 mi. Buckner-Centerfield Rd., RS 96-316, Oldham Co.,*** H. K. Williams & Co., Inc., 4141 Park Blvd., Louisville 9, Ky. bit. surf. Class I 14.533 mi., SP Group 3, Daviess Co.*** R. B. Tyler Co., 1446 Levering St., Louisville, Ky., **$107,429**, bit. surf. Class I, 14.705 mi. Carlisle and Ballard Counties***S. J. Boone, Owensboro, K., **$67,199**, local bank or creek grav. 7.572 mi., Gage-Kevil Rd., RS 4-261, Ballard Co., KENTUCKY. State Hy. Dpt., Frankfort, Ky. Bids June 8.

U. S. Pipe & Foundry Co., St. Louis Ave., Birmingham, Ala. Low Bidder. **$100,410**. Water lines, extens. present sys., LOUISVILLE, KY. Preston St., Water Dist., Louisville, Ky. Bids May 23. CD 5/16.

State Hy. Dpt., Nashville, Tenn., rejected bids May 18, bit. materials surf. existing c. conc. pavement 2.531 mi. sect. Secondary Hy. 4309 from State Hy. 2 approx. ½ mi. west of Chattanooga and exten. to Lookout Mountain city limits, Proj. S 4309 (1), Hamilton Co., TENNESSEE. L. B. **$61,479**. CD 5/25, under LB.

LOW BIDDERS—BUILDINGS

R. H. Wattinger, 1 North 6 St., Richmond, Va. Low Bidder. **$985,000**. continued imprvt. group bldg. at Eastern State HOSPITAL, WILLIAMSBURG, VA. State of Virginia, Richmond, Va. Bids June 12. CD 5/4.

Southern Constr. Co., 1235 Reynolds St., Augusta, Ga. Low Bidder. **$624,385**. HOUSING Units, ABBEVILLE, S. C. Abbeville Housing Auth., Abbeville, S. C. Bids June 7. CD 5/18.

Byck-Worrell Constr. Co., E. Bay St., Savannah, Ga., Low Bidder, **$983,847**. 125 HOUSING units, ALBANY, GA. Albany Housing Auth., Albany, Ga. Bids June 7. CD 5/24.

Southern Constr. Co., 1235 Reynolds St., Augusta, Ga., Low Bidder. **$557,000**. 80 HOUSING units, GAINESVILLE, GA. Gainesville Housing Auth., Gainesville, Ga. Bids June 12. CD 5/23.

Edward M. Fleming Constr. Co., 3304 N. Miami Ave., Miami, Fla. Low Bidder. **$785,000**, 112 HOUSING units, DAYTONA BEACH, FLA. Daytona Beach Housing Auth., Daytona Beach, Fla. Bids June 12. CD 5/9.

Arthur Perry, Inc., 1746 E. Adams St., Jacksonville, Fla. Low Bidder. **$641,200**, HOSPITAL, DELAND, FLA. Bert Fish Testamentary Trust, Fish Bldg., Deland, Fla. Bids June 9. CD 4/25.

▲ **Whittenberg Constr. Co.**, 2214 S. Floyd St., Louisville, Ky. Low Bidder. **$4,340,000**. est. $3,000,000 HOUSING units, Proj. Ky. 9-4 and Ky. 9-3, OWENSBORO, KY. Owensboro Housing Auth., 316 Hale Ave., Owensboro, Ky. Meriwether Marye & Assoc., 236 E. Short St., Lexington, Ky., archts. Bids June 13. CD 5/23.

▲ **James E. Greene Constr. Co.**, Johnson City, Tenn. Low Bidder. **$2,882,000**, HOUSING units, JOHNSON CITY, TENN. Johnson City Housing Auth., Johnson City, Tenn. Bids June 12. CD 5/24.

CONTRACTS—HEAVY CONSTRUCTION

† **Chicago Bridge & Iron Co.**, Healy Bldg., Atlanta, Ga., Contract Awarded, **$536,900**, 7 fuel storage tanks, JACKSONVILLE, FLA. Dpt. Navy, Officer in Charge of Constr. Naval Base, Charleston, S. C. CD 6/6, under LB.

Patterson & Holmes, c/o J. W. Goodwin Eng. Co., engrs., 2111 Seventh Ave., Birmingham, Ala. Contract

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviolved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

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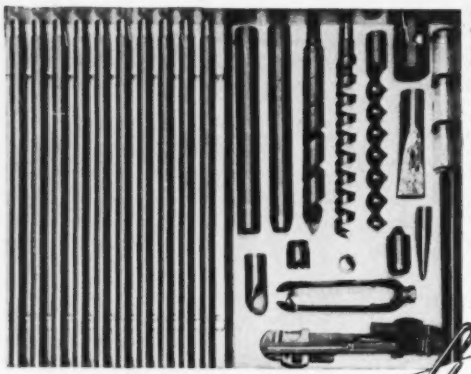
Everything you need for accurate sub-surface information



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All tools fit into a sturdy steel box, where they are always available for instant use.

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And Get a Perfect Job

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- **LESS COST**—Can be reused indefinitely year after year without repair. Contractors report 400 uses and more. Interchangeable steel forms for slabs, walls, circular tanks, tunnels, manholes, modular structures.
- **LESS TIME**—Simple to set up with wedge bolts . . . . No gadgets or special fastenings . . . No joists needed on slabs. No studs on walls. Lightweight, easy to handle.
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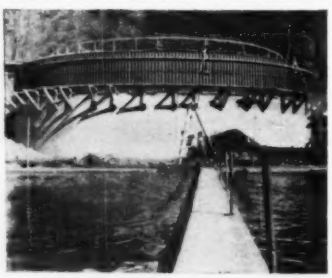
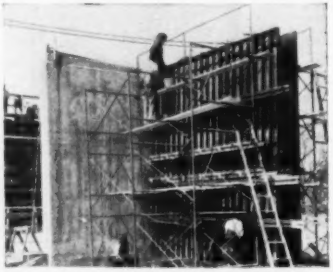
Glad to have a representative call to give you complete facts on this new money-saving technique of form construction. Write Dept. *R.N.*

IRVINGTON FORM & TANK CORP.
20 Vesey St. N. Y. 7, N. Y.



Speed forms as used on circular tank 80'-0" I.D. by 21'-0" high poured in three lifts of one set 8' forms. Water Supply System, St. Johnsville, N. Y. Morrell Vrooman Engineer, Weber Const. Co., Contractor.



Atlas SPEED Forms used at U. S. Engineers Flood Control Project, Ohio River. The units are set in 3' x 9' panels. Walls are 18' to 27' high. W. L. Johnson, General Contractors, Cincinnati, Ohio.

Atlas *Labor-Saving* Concrete Forms for every Purpose

Awarded, **$245,000**, natural gas sys., **ATHENS, ALA.** City, Athens, Ala. Bids June 4. CD 5/28.

C. E. Adams & Co., Inc., 3700 10 Ave. N., Birmingham, Ala. Contract Awarded. **$152,727**, natural gas sys., **HARTSELLE, ALA.** City, Hartselle, Ala. Bids June 4. CD 5/28.

† **Boyd Constr. Co.**, Columbia, Miss. Contract Awarded. **$105,038.** Rosenwald School to Caney Bayou Rd. in Enid Reservoir area, Inv. 51-179, Panola Co., MISSISSIPPI. U. S. Eng., P. O. Box 60, Vicksburg, Miss. Bids June 6. CD 5/16.

J. H. Moon, Port Gibson, Miss. Contract Awarded. **$183,302**, est. $175,000. grading, culverts, bridge, grav. surf. 1.186 mi. Miss. Hy. 322 between Lambert and Crowder, F. A. Secondary Proj. S 836-1 (1), Quitman Co.; **Newsom Bros.**, Columbia, Miss., **$72,102**, est. $68,000, grading, culverts, bridges 0.597 mi. Miss. Hy. 489 and 494 between Lake and Union S. P. 489-1151, Newton Co., MISSISSIPPI. State Hy. Dpt., Jackson, Miss. Awarded June 12.

† **F. J. J. Sloat Dredging Co.**, P. O. Box 396, Slidell, La. Contract Awarded. **$256,830.** 2,100,000 cu. yd. channel excav., Mermentau River, Inv. 51-202, Cameron Parish, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans 9, La. Bids June 7. CD 5/15.

Koller Constr. Co., Tradesmen National Bank Bldg., Oklahoma City, Okla. Contract Awarded. **$92,370.** WW imprvs., FERRIDAY, LA. Town, Ferriday, La. Bids June 6. CD 5/29.

▲† **Barksdale & LeBlanc**, P. O. Box 1567, Baton Rouge, La. Contract Awarded. **$1,192,420.** addnl. barracks, mess halls, Lake Charles Air Force Base, LAKE CHARLES, LA. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. CD 6/12 under LB.

Little & Ford Sand & Gravel Co., Blanchard, La. Contract Awarded. **$82,176.** bit. surf. 5.82 mi. Ellerbe and Woolworth Rds., SHREVEPORT, LA. Caddo Parish Police Jury, Shreveport, La. Bids June 6. CD. 5/22.

Mahoney Constr. Co., Lansing, Mich. Contract Awarded. 100 mi. 30 in. pipe line from Kentucky River to Ohio River, northeastern KENTUCKY. Texas Eastern Transmission Corp., City National Bank Bldg., Houston, Tex.

W. L. Hailey Constr. Co., 314 42 Ave. N., Nashville, Tenn. Contract Awarded. **$469,391.** grading, surf., construct 6 bridges 10.441 mi. sect. Secondary Rte. 6208 from Alabama State Line exten. north 10.441 mi. toward Pulaski, Proj. S 6208 (2), Giles Co., TENNESSEE. State Hy. Dpt., Nashville, Tenn. CD 5/25, under LB.

† **Sam P. Maury Constr. Co.**, 802 Adams St., Memphis, Tenn. Contract Awarded. **$559,578.** 10 steel, concrete, brick SHOPS, INSTRUCTION BLDGS., MILLINGTON, TENN. Pub. Wks. Office, Box 365, Naval Base, Charleston, S. C. CD 6/8 under LB.

▲† **J. B. Michael & Co.**, 1021 Heywood Ave., Memphis, Tenn., Contract Awarded. **$1,027,754**, runway extens., and taxiways at Stewart Air Force Base, Serial N1. 40-058 51-3 SMYRNA, TENN. U. S. Eng. 303 U. S. Court House, Nashville 1, Tenn. Bids June 5. CD 5/29.

CONTRACTS—BUILDINGS

Blue Ribbon Constr. Co., 171 Hialeah Dr., Hialeah, Fla. Owner Builds. **$600,000**, 122 HOMES, HIALEAH, FLA.

▲ **J. Hilbert Sapp, Inc.**, Box 3211, West Palm Beach, Fla., Contract Awarded. **$893,734**, South Orlando high SCHOOL. Bids June 6, **$877,872**, North Orlando High SCHOOL, Bids May 25, CD 4/25, **ORLANDO, FLA.** Orange Co. Bd. P. Instruction, Orlando, Fla.

Stanley W. Newman, P. O. Box 1646, Mobile, Ala. Contract Awarded. **$391,300.** 49 HOUSING units, Proj. Miss. 5-6, BILOXI, MISS. Biloxi Housing Auth., Biloxi, Miss. Bids June 4. CD 5/15.

Building Service Co., West Point, Miss. Contract Awarded. **$385,000.** 48 HOUSING units, Proj. Miss. 59-2, WEST POINT, MISS. West Point Housing Auth., West Point, Miss. Bids June 5. CD 5/22.

Bruning Constr. Co., Crowley, La. Contract Awarded. **$85,000.** WAREHOUSE, CROWLEY, LA. Samson Warehouse Co., c/o contractor.

Lionel F. Favret Co., 937 Gravier St., New Orleans, La. Contract Awarded. **$103,500.** 77x120 ft., steel, masonry food mfg. PLANT, NEW ORLEANS, LA. Blue Plate Foods, Inc., 1315 S. Jefferson Dr. Parkway, New Orleans, La. August Perez & Assoc., Audubon Bldg., New Orleans, La., archts.

Werner Co., 1320 Pierre Ave., Shreveport, La. Contract Awarded. **$85,000.** WAREHOUSE and OFFICE addn., SHREVEPORT, LA. Interstate Oil Pipe Line Co., Standard Oil Bldg., Shreveport, La.

MIDDLE WEST

BIDS ASKED—BUILDINGS

† **Ind., Fort Benjamin Harrison**—FINANCE CENTER—B.A. 7/6—U. S. Army, Pentagon Bldg., Wash., D. C., army finance center, site grading, storm and sanitary sewers, open ditch drainage, water supply lines, grading and railroad spur. Plans deposit $50. CD 2/12.

Ill., La Grange—SCHOOL—B.A. 7/10—School Dist. 105 c/o 7 Ave. School, 1 story, brick Ideal School, 58 and 59 Sts. east of Lagrange Rd., $300,000; 1 story, brick Hodgins St. School addn., $300,000; 1 story, brick West Side School, 52 and Spring Sts., $300,000. Perkins & Wills, 309 Jackson Blvd., Chicago, 6, Ill., archts. CD 5/23.

O., Dayton—SCHOOL—B.A. 7/12—Bd. Educ., Olive Coombs, clk. Mad River Twp., Harshman Rd., 2 story school. Plans deposit $10. Walker, Norwick &

Assoc., 1301-4 American Bldg., Dayton 2, O., archts. and engrs. CD 5/9/50.

SOON LETS CONTRACT—BUILDINGS

Ill., Niles—FACTORY—B.A. 6/18—Harig Mfg. Co., 319 N. Albany St., Chicago, Zone 12, soon lets contract 30,000 sq. ft., factory, 5757 Howard Ave. $275,000. Fox & Fox, 30 N. La Salle St., Chicago, Zone 2, archts.

LOW BIDDERS—HEAVY CONSTRUCTION

Curri Constr. Co., Bloomington, Ind. Low Bidder, **$125,000,** sewage disposal plant and sewer line, SELLERSBURG, IND. City, Sellersburg, Ind. Bids June 11. CD 6/4.

▲† La Crosse Dredging Corp., 310 S. Michigan Ave., Chicago 4, Ill. Low Bidder, **$1,271,835,** excavation of canal and constr. levee downstream from Lock 27, Mississippi River Chain of Rocks Canal, Granite City, Ill. and vicinity of Madison Co., CIVENG 23-065-51-67, ILLINOIS. U. S. Eng., 834 U. S. Court House and Custom House, 1114 Market St., St. Louis, 1, Mo. Bids June 12. CD 5/13.

Caldwell Eng. Co., 803 W. College St., Jacksonville, Fla. Low Bidder, **$91,393,** water supply sys., filtration plant, pumps and pump house for Decatur Municipal Airport, DECATUR, ILL. Decatur Park Bd., Decatur, Ill. Bids June 12.

Caldwell Eng. Co., 803 W. College St., Jacksonville, Ill. Low Bidder, **$91,840,** grading, drainage, surfacing runways, taxiways, entrance road and parking areas for Municipal Airport, JACKSONVILLE, ILL. City Jacksonville, Fla. Bids June 12.

Quad-City Constr. Co., 644 25 Ave., Rock Island, Ill., Low Bidder, **$96,638,** grading, drainage, sewage disposal sys., water mains, emergency lighting sys., power distr. center and emergency generating bldg., ROCK ISLAND, ILL. Rock Island Airport Auth., Rock Island, Calif. Bids June 12.

LOW BIDDERS—BUILDINGS

Chas. B. Johnson & Son, 6 N. Michigan St., Chicago, 2, Ill. Low Bidder, **$796,000,** 1 story, bsmnt., 80,000 sq. ft. face brick, stone, HOSPITAL, EVANSTON, ILL. Community Hospital of Evanston, 2026 Brown Ave., Evanston, Ill. Bids June 6. CD 5/23.

▲ Jos. J. McCarthy & Son, 1026 N. Clark St., Chicago, Ill. Low Bidder, **$2,209,000,** hospital PERSONNEL addn. WESTVILLE, IND. State, P. Wks. & Supply Div., W. R. Mybeck, dir., State House, Indianapolis, Ind. Bids May 26. CD 4/24.

CONTRACTS—HEAVY CONSTRUCTION

McNally Pittsburgh Mfg. Corp., Pittsburg, Kan., Contract Awarded, **$250,000,** constr., installation railroad-car-to-barge coal conveyor on Ohio River, JOPPA, ILL. Chicago & Eastern Illinois R.R. I. A. Moore, ch. engr., Danville, Ill. CD 3/26.

CONTRACTS—BUILDINGS

Lorraine Homes, Inc., 6601 Irving Park Rd., Chicago, 34, Ill. Owner Builds, **$600,000,** 45 RESIDENCES on Howard Ave., ARLINGTON HEIGHTS, ILL. T. F. Cunningham, 7543 S. Western St., Chicago, 45, Ill., archt.

L. & R. Constr. Co., 6609 Latta Pl., St. Louis, 20, Mo., general contract; **Clark Palmer,** 42 N. Prairie St., Galesburg, Ill., plumbing, heating, and ventilating; **Lepper Electric Co.,** 217 N. 8 St., Quincy, Ill., electrical work for 1 and 2 story L-shaped 150x150 ft., brick CHAPEL and MUSIC bldg., CARTHAGE, ILL. Carthage College. Wm. C.Kraus, bus. mgr., Carthage, Ill. Total est. **$400,000.** Bids May 26. CD 5/23.

Gawley Constr. Co., 1907 W. 79 St., Chicago, 20, Ill., Contract Awarded, **$130,000,** PLANT addn., CHICAGO, ILL. Continental Scale Co., 57 and Claremont Sts., Chicago, 3, Ill. Engineering Systems, 221 N. LaSalle St., Chicago, 1, Ill., engrs. Bids Oct. 10. CD 10/2.

John Gebhardt & Son, 308 W. Washington St., Chicago, 6, Ill. Contract Awarded, **$150,000,** BREWERY modifications, CHICAGO, ILL. Siebert's Brewery Co., 1470 Larrabee St., Chicago, 10, Ill.; Herman Gaul & Son, 228 E. Superior St., Chicago, 11, Ill., archts. Awarded June 7.

LaSalle Constr. Co., 343 S. Dearborn St., Chicago, 4, Ill., Contract Awarded, **$360,000,** HOSPITAL addn., CHICAGO, ILL. Salvation Army, Hudson and Wisconsin St., Chicago, 14, Ill. Bids Feb. 20, Awarded June 4. CD 2/19.

Northern Builders, 4002 Addison St., Chicago, 41, Ill. Contract Awarded, Approx. **$80,000,** 8,800 sq. ft., FACTORY addn., CHICAGO, ILL. Mallard Mfg. Co., 6021 N. Keystone St., Chicago, 30, Ill. Frank S. Musser, 1712 W. 107 St., Chicago 43, Ill., archt. Awarded June 4.

Sill Constr. Co., 332 S. Michigan Ave., Chicago, 1, Ill., Contract Awarded, **$130,000,** process PLANT addn., CHICAGO, ILL. Libby, McNeill & Libby, Union Stock Yards, Chicago, Ill. Fred Dolke, 179 W. Madison St., Chicago, 3, Ill., archt. Awarded June 1.

Geo. Sollitt Constr. Co., 109 N. Dearborn St., Chicago, 2, Ill. Contract Awarded, **$500,000,** 3 story, brick, steel, concrete NURSES HOME, CHICAGO, ILL. St. Anne's Hospital, 4930 W. Thomas St., Chicago, 51, Ill. N. Roy Shambleau, 621 J. M. S. Bldg., South Bend, Ind., archt. Awarded June 4.

Fallon O'Donovan & Rassas, 4619 School St., Chicago, 41, Ill. Contract Awarded, **$500,000,** 1 story, brick, concrete block, 60,000 sq. ft. SCHOOL, PARK FOREST, ILL. School Dist. 163, Park Forest, Ill. Bids Mar. 27. CD 3/16.

A. J. Epstein & Assoc., 4840 Dempster St., Skokie, Ill., Owner Builds, **$650,000,** 45 HOMES in Cook County near Lake and Wagner Rds., near GLENVIEW, ILL. Emil Minx, 5150 Dempster St., Skokie, Ill., archts. Awarded June 6.

▲ Bethlehem Steel Corp., Eight and Lehigh Sts., Bethlehem, Pa. Contract Awarded. **$2,645,630,** steel for 14 and 20 story, bsmnt. sub-bsmnt. City-County BUILDING, DETROIT, MICH. City, City-County Bldg. Auth., Mayor Cobo, chn., Detroit, Mich. Bids Apr. 24. CD 3/28.

W. E. Wood Co., 4649 Humbolt St., Detroit, Mich. Contract Awarded. **$500,000.** stone CHURCH, incl. towers, Woodward Ave., DETROIT, MICH. Blessed Sacrament R. C. Parish, 9844 Woodward St., Detroit, Mich. CD 6/9/43.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† Wyoming—B.A. 7/17—Bureau Reclamation, Dpt. Interior, P.O. Box 1111, Thermopolis, constr. earthwork, structure track and communications line, relocation of Chicago and North Western Railway, Boysen Reservoir, Boysen Div., Boysen Unit, Missouri River Basin Proj., between Shoshoni and Riverton, Fremont Co., Spec. DC-3456. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.; adv. ENR 6/28.

Missouri—RURAL DISTRIBUTION LINES—B.A. 8/9—Laclede Electric Co-operative, J. W. Hough, mgr., Lebanon, 375 mi. rural distr. lines, 47 mi. conversions in Laclede, Webster and Wright Counties. $885,000. Frank Horton & Co., Lamar, engrs. CD 5/14.

BIDS ASKED—BUILDINGS

Tex., Grand Prairie—SCHOOL—B.A. 7/9—Grand Prairie Independent School Dist., Grand Prairie, 66,500 sq. ft., steel brick, concrete Senior High School, $700,000. Plans deposit $40. Adams & Adams, 518 W. Davis St., Dallas, archts. CD 5/2, under LB.

Tex., Waco—BIBLE—B.A. 7/10—Baylor University, Waco, 10 story bsmnt., Tidwell Bible Bldg. $600,000. Plans deposit $100. Extended date. Guy Carlander, Amarillo, archt. CD 4/5.

Minn., Austin—COURT HOUSE—B.A. 7/11—Mower Co., C. M. Hubbard, aud., 3 story, 59x168 ft. court house annex adjacent to existing court house, $500,000. Plans deposit $40, Liebenberg & Kamplan, 51 S. 13 St., Minneapolis, archts. CD 5/16.

SOON LETS CONTRACT—BUILDINGS

Minn., St. Paul—TEMPLE—Mount Zion Temple, 798 Holly Ave., soon lets contract 2 story, bsmnt., 45x265 ft., T-shape school wing, bsmnt., 71x72 ft., 36x51 ft., 86x115 ft. temple, Summit Ave. near Hamline Ave. $600,000. Eric Mendelsohn, 627 Commercial St., San Francisco, Calif., archt. CD 3/23/50.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† George Bennett Constr. Co., 1520 Central St., Kansas City, Kan. Low Bidder. **$1,984,628.** levee Sect. II, North Kansas City, Inv. 75, MISSOURI. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids June 7.

▲† American Bridge Co., First National Bank Bldg., Denver, Colo. Low Bidder. **$4,178,114.** 230 kv transmission lines galvanized steel double circuit towers, appurtenances for Oahe-Fort Randall-Sioux City, Missouri River Basin Proj., Spec. DS 3391, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids June 15.

Holland Page, P.O. Box 118, Austin, Tex. Low Bidder. **$96,455,** grading, structures, base and surf. 13.105 mi. Hy. FM 394, Proj. R 276-5-1, Zavala Co.; **$289,794,** exten. structures, wid'n. pavement, hot mix b. conc. 5.088 mi. Hy. U.S. 87 and 70, F 546 (6), Hale Co.*****E. B. Darby & Co.,** Pharr, Tex., **$139,224,** wid'n., grading, structures, base and surf. 6.749 mi. Hy. U.S. 281 and FM 1425, Proj. C 220-23 3 & 3, Cameron and Hidalgo Counties*****Dew Constr. Co., Inc.,** P.O. Box 641, Tyler, Tex., **$79,863,** base and surf. 14.885 mi. Hy. FM 895 and FM 198, Proj. V. 1174-1-3 and V763-2-2, Delta Co.*****Bell, Braden, Barker & Gilvin, Inc.,** Herrin Hotel Bldg., Amarillo, Tex., **$272,340,** pavement wid'n., hot mix b. conc. 16.961 mi. Hy. U.S. 87, Proj. C.67-1-20 and 21, Randall Co., TEXAS. State Hy. Comn., Austin, Tex. Bids June 12. CD 5/25.

Moore Bros. Constr. Co., Lufkin, Tex. Low Bidders, **$89,579,** c. conc. 0.931 mi. HY SH 94, Proj. C 317-4-18, Angelina Co.*****M. E. Ruby & W. L. Barnes,** San Marcos, Tex., **$72,313,** reworked ltr. and base course surf. tr. Hy. SH-164, Proj. 5189 (4) and (5), Freestone and Leon Counties*****Holland Page,** P.O. Box 1181, Austin, Tex., **$419,404,** grading, structures, flex base, asph. 11.903 mi. Hy. U.S. 77, Proj. F 1097 (1), San Patricio Co., CD 5/25*****Ernest Loyd,** P.O. Box 1120, Fort Worth, Tex., **$66,061,** grading, structures, base surf. 3.811 mi. FM 1203 Proj. F 1357-1-1, Cooke Co., CD 6/1, TEXAS. State Hy. Comn., Austin, Tex. Bids June 13.

E. & M. Bohuskey Constr. Co., Box 1226 Harlingen, Tex. Low Bidder. **$102,723.** terminal facilities, incl. bulkheads, steel sheet piling, etc., HARLINGEN, TEX. Arroyo Colorado Navigation Dist., Harlingen, Tex. Bids June 7. CD 5/16.

LOW BIDDERS—BUILDINGS

▲ J. M. Odom, Box 774, Austin, Tex. Low Bidder. **$1,064,702.** 160 brick HOUSING units, Proj. Tex 1-4, AUSTIN, TEX. Austin Housing Auth., 302 Chalmers St., Austin, Tex. Bids June 12. CD 5/28.

▲ N. A. B. Corporation, Milby Hotel, Houston, Tex. Low Bider. **$4,989,913.** construct, manage and finance 403 military HOUSING units, Inv. No. Eng. 41-243-51-56, Job No. 4192, FHA Proj. Nov. 112-80002-Army-2, FORT HOOD, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 13. CD 5/9.

Schneider Constr. Co., 3004 W. Dallas St., Houston, Tex. Low Bidder. **$319,000.** remodeling, addn. Sam houston High SCHOOL, HOUSTON, TEX. Houston Independent School Dist., Houston, Tex. Bids June 7. CD 5/29.

▲ R. F. Ball Constr. Co., 3200 W. Dallas St., Houston, Tex. Low Bidder. **$2,038,777.** 275 HOUSING units, Tex. 6-7, SAN ANTONIO, TEX. San Antonio Housing Auth., 419 S. St. Marys St., San Antonio, Tex. Bids June 12.

CONTRACTS—HEAVY CONSTRUCTION

▲† S. J. Groves & Sons Co., 510 Wesley Temple Bldg., Mineapolis, Minn. and **Megarry Bros.,** St. Cloud, Minn. Contract Awarded. **$1,805,843.** runway exten. at Duluth Air Force Base, DULUTH, MINN. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids May 15. CD 4/30.

▲† Geo. Bennett Constr. Co., 1520 Central St., Kansas City, Kan. Contract Awarded. **$1,984,628.** 5 mi. levee on north bank of Missouri River from Hannibal Bridge to Rock Creek and inland north and west to Kansas City Municipal Waterworks, MISSOURI. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Awarded June 15. CD 4/27.

† Ponsford Brothers, 914 E. Missouri St., El Paso, Tex. Contract Awarded. **$77,500.** communications bldg. for Biggs Air Force Base, Eng. 29-005-51-49, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. CD 5/17.

City, Galena Park, Tex. Owner Builds. **$65,000.** sanitary sewer lines, GALENA PARK, TEX. CD 6/19/50.

City, Galena Park, Tex. Owner Builds. **$80,000.** asph. street paving, GALENA PARK, TEX.

City, Garland, Tex. Purchase and Hire. **$35,000.** addnl. water lines, GARLAND, TEX.

City, Garland, Tex. Purchase and Hire. **$78,500.** addnl. sanitary sewer lines, GARLAND, TEX. CD 12/12.

CONTRACTS—BUILDINGS

Forest Hills Constr. Co., 5506 Natural Bridge Ave., St. Louis 20, Mo. Contract Awarded. **$500,000.** 163 HOUSES, Sky-Vue-Acres subdivision at Charbonnie Rd. and Hy. 140, FLORISSANT, MO. Keeney-Toelle Realty Co., 5506 Natural Bridge Ave., St. Louis, Mo.

Thos. P. Brennan Constr. Co., 801 Commerce St., Fort Worth, Tex. Contract Awarded. **$565,000.** 75 DWELLINGS, FORT WORTH, TEX. Thos. M. Ryan & Co., 801 Commerce St., Fort Worth, Tex. CD 4/17.

C. O. Beeler Riverside Development Co., 5047 Marietta St., Houston, Tex. Owner Builds. Approx. **$385,000.** 10 DWELLINGS, PASADENA, TEX. CD 2/23.

▲† R. E. McKee, P.O. Box 637, Los Alamos, N. M. Contract Awarded. **$1,813,700.** ADMINISTRATION bldg., shop and 2 guard stations, site imprvs., utilities, LOS ALAMOS, N. M. Atomic Energy Comn., Los Alamos, N. M. Awarded June 6. CD 6/8, under LB.

▲† Utah-Leavell Constr. Co., P.O. Box 298, Los Alamos, N. M. Contract Awarded. **$1,014,000.** 1 rein.-con. 80x130 ft. bldg., one 35x100 ft., single story w/bsmnt. bldg. clearing, grading, site imprv. utilities, water, sewer power and steam lines, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Awarded June 6. CD 5/23.

FAR WEST

BIDS ASKED—BUILDINGS

Wash., Ephrata—SCHOOL—B.A. 7/9—School Dist., 165-55 J Ephrata, school. $300,000. Plans deposit $25. W. H. Rothe, 807 W. Yakima Ave., Yakima, archt. CD 4/18.

LOW BIDDERS—HEAVY CONSTRUCTION

† C. D. Draucker, Inc., 2707 San Fernando Rd., Los Angeles, Calif., Low Bidder, **$189,877,** airfield lighting at Luke Air Force Base, ENG 04-353-51-70, PHOENIX, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 11.

▲ Guy F. Atkinson Co., Box 593, South San Francisco, Calif. Low Bidder, **$7,249,000,** transit shed facilities at Berths 196-197, LOS ANGELES, CALIF. Los Angeles Harbor Dpt., City Hall, Los Angeles, Calif. Bids June 13, CD 5/29.

▲† Peter Kiewit Sons' Co., 345 Dieways Ave., Arcadia, Calif. Low Bidder. **$6,197,199,** runways, taxiways, etc., Eng 04-353-51-78, MARCH AIR FORCE BASE, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 14, CD 6/5.

† Edward R. Siple, 2545 San Fernando Rd., Los Angeles, Calif. Low Bidder. **$117,212,** remote control receiver and transmitter bldg. at George Air Force Base, ENG 04-35-51-80, VICTORVILLE, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 11.

CONTRACTS—HEAVY CONSTRUCTION

Diesel Oil Sales Co., 2155 Northlake Ave., Seattle, 3, Wash., Contract Awarded, **$176,686,** non-skid single seal tr. 172.18 mi. State Hys. 10, 4, 10-A and 10-B, Knapp's Hill to International Boundary, et. al., Okanogan, Douglas Chelan and Ferry Counties*****$73,437** non-skid seal tr. 58.85 mi. State Hys. 9 and 9-A, Jorsted Creek to Duckabush Mason, Jefferson and Clallam Counties*****J. P. Surace,** 3238 Seaview Ave., Seattle, Wash., **$289,730,** clearing, grading, stockpiling, surf. 3.95 mi. Primary State Hy. 9, Contractor's Gulch to Junction City, F.A.P. No. F 007-4 (3), Jefferson Co., WASHINGTON State Hy. Dpt., Olympia, Wash. Grand total, $539,853. Bids June 12. CD 6/4.

General Electric Supply Corp., 300 N. W. 14 St., Portland, Ore. Contract Awarded. **$91,264.** 185 ornamental standard lights, 40 mercury vapor lamps, 142,000 ft. aluminum and copper wire and cable,

etc. for $150,000 street lighting sys., VANCOUVER, WASH. Clark Co. Public Utility Dist., Vancouver, Wash. Bids May 24. CD 5/2.

Harms Bro., 6261 Stockton Blvd., Sacramento, Calif. Contract Awarded. $596,743, grading, surf., rein.-con. arch culvert 3.3 mi. between Jamestown and Sonora, Tuolumne Co., CALIFORNIA State Div. Hys., P. Wks. Bldg., Sacramento, Calif. Bids May 9, awarded June 6. CD 5/17, under LB.

† **Kirst & Sons**, 836 W. Atlantic Ave., Altadena, Calif. Contract Awarded. $510,659, runway, taxiway, alter apron George Air Force Base, ENG 04-353-51-81, VICTORVILLE, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids May 31. CD 6/5, under LB.

CONTRACTS—BUILDINGS

▲ **Morrison-Knudsen Co**., 319 Broadway, Boise, Idaho. Contract Awarded. Approx. $3,000,000, elemental phosphorus PLANT, incl. laboratories, shop, office, pre-furnace processing plant, SODA SPRINGS, IDAHO. Monsanta Chemical Co., 1700 S. Second St., St. Louis, Mo. J. H. Bergusonico, Cleveland, O., engr.

U. S. POSSESSIONS

BIDS ASKED—BUILDINGS

† **Virgin Islands**—HOSPITALS—B.A. 7/24—Dist. Eng. Dpt. Interior, Post Office Box No. 479, St. Thomas, Proj. 53-115, 4-bed public health facility at St. John; Proj. 53-501 (2), 12-bed general hospital at Frederiksted, St. Croix; Proj. 53-501 (1) 70-bed general hospital at Christiansted, St. Croix; Proj. 53-101, 116-bed general hospital at Charlotte Amalie, St. Thomas. Extended date. CD 6/1.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ont., Ottawa**—AIRPORT—B.A. 7/4—S. M. Connolly, engr., Defence Constr. Ltd., 441 Queen's Quay W., Toronto 2B, Ont., airport extens., rein.-con. hangar, storage and ME garage, steam power plant, cafeteria, and ground services, File-122 8-01-8. Approx. $1,-000,000. Plans deposit $100.

Ont., Port Arthur—BIDS ASKED—City, City Hall, asph. paving and street wid'n. $559,650. S. E. Flock, Port Arthur, city engr. CD 3/9.

BIDS ASKED—BUILDINGS

Ont., Fort Frances—SCHOOL—B.A. 7/6—Fort Frances Bd. Educ., Fort Frances, 91x128 ft., steel, masonry high school addn. and gymnasium. $400,000. Plans deposit $25. L. Y. McIntosh & Assoc., 416 Victoria Ave., Ont., archts. CD 3/16.

Ont., Richmond—SCHOOL—B.A. 7/9—H. Coldrey, secy. South Carleton & District High School Bd., Richmond, rein.-con. brick high school. Approx. $350,000-$400,-000. H. H. Roberts, Westport, Ont., archt. CD 6/4.

B. C., Nanaimo—SCHOOL—B.A. 7/12—Miss Ruther Brown, secy.-treas. School Dist. 68 Nanaimo, B. C., frame stucco high school. $900,000. Plans deposit $50. Thos. B. McArray, Addison Block, Nanaimo, B. C., archt. CD 10/28/49.

LOW BIDDERS—HEAVY CONSTRUCTION

Henry Borger & Son Ltd., 2004 14 St., Calgary, Alta. Low Bidder. $207,246, installing storm sewer in 11 Ave. West, first phase in constr. of 4th Street Subway, CALGARY, ALTA. City, City Hall, Calgary, Alta. Bids May 3.

W. C. Arnett & Co., Ltd., Penticton, B. C. Low Bidder. $379,101. Substructure Parsnip River Bridge on John Hart Hy. in Prince George District, BRITISH COLUMBIA. Province of British Columbia, Parliament Bldgs., Victoria, B. C. Bids June 4. CD 5/2.

CONTRACTS—HEAVY CONSTRUCTION

Nodwell Brothers Ltd., 3703 Edmonton Trail, Calgary, Alta. Contract Awarded. $232,125. 5 large rein.-con. drops and structural steel railway crossing and other appurtenant structures, 2 mi. west of Raymond, ALBERTA. Director Water Resources, Province of Alberta, Terrace Bldg., Edmonton, Alta. Bids May 28, awarded June 1. CD 5/14.

Sterling Constr. Co., Ltd., 2494 Sandwich St., E., Windsor, Ont. Contract Awarded. Approx. $314,325, about 22 mi. hot mix asph. pavement, CHATHAM, ONT. Kent Co., Chatham, Ont. W. D. Colby, c/o owner, engr.

Code Constr. Co., Ltd., 3 Maitland St., Smiths Falls, Ont. Contract Awarded. Approx. $75,000. Pipe line tunnel, metrology tunnel, pumphouse sewers and water lines at Montreal Road laboratories, OTTAWA, ONT. National Research Council, Sussex St., Ottawa, Ont. Bids May 9. CD 4/24.

Marino Constr. Co., 7 Sibley Ave., Richmond Hill, Ont. Contract Awarded. $300,000. Sewage disposal plant, RICHMOND HILL, ONT. Village, R. Lynett, clk., Richmond Hill, Ont. Bids May 7, awarded June 11. CD 4/20.

CONTRACTS—BUILDINGS

Bennett & White, 11239 83 St., Edmonton, Alta. Contract Awarded. $500,000. 1 story, bsmnt., 250x270 ft., GARAGE and WAREHOUSE for electric light and power and telephone dpts. of city, EDMONTON, ALTA. City, Civic Block, Edmonton, Alta. Bids May 21. CD 5/11.

Wiseman & Thompson, Finch, Ont. Contract Awarded. $568,570. 17 classroom SCHOOL, NEWINGTON, ONT. Stormont District High School Bd., A. M. Dougall, secy.-treas. Finch, Ont. Bids June 8, awarded June 12. CD 6/1.

Alex. I. Garvock, Regent Theatre Bldg., Sparks St., Ottawa, Ont. Contract Awarded. Approx. $535,000, East Lawn Pavilion of Civic HOSPITAL, OTTAWA, ONT. Ottawa Civic Hospital Bd., Carling Ave., Ottawa, Ont. Bids June 4. CD 5/18.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Costa Mesa—Fairview County Water Dist., Costa Mesa, voted $325,000 bonds, replacing every line in water system. J. R. Lester Boyle, Spurgeon Bldg., Santa Ana, consult. engr. CD 3/6.

Mich., Brooklyn—Village, municipal water sys., storage and distr. facilities, Proj. 262 to 21, $130,000.

Tex., Greenville—City, voted bonds, WW. $950,000. Frreese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

Utah, Salt Lake City—City, c/o Irma Bitner, recdr., City and County Bldg., water supply line, approx. 14,000 ft. 20 and 24 in. diam. from Deer Creek Aqueduct to 9th East St. $200,000. Ray W. McLeese, city engr. CD 5/24/44.

Wyo., Riverton—City, City Hall, water sys. expansion, $130,000. James T. Banner & Assocs., 209 Ivinson Ave., Laramie, Wyo., consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Ill., Joliet**—City, City Hall, sewage disposal works, interceptor sewerage system. $1,500,000. Consoer, Townsend & Assoc., 351 E. Erie St., Chicago 11, Ill., consult. engr. CD 9/15/50.

▲ **Mich., Mount Pleasant**—City, sewage treatment works, intercepting and storm, sanitary sewerage sys. $1,100,000. Consoer, Townsend & Assoc., 351 E. Erie St., Chicago 11, Ill., consult. engrs.

▲ **O., Middletown**—City, sewerage imprvt. program (1) 9th Ave.-2nd Ave. relief sewers (2) Michigan District relief sewer (3) Lakeside relief sewer (4) Bull's Run relief sewer (5) Process sewer (6) intercepting sewer (7) sewage treatment works, primary type. Approx. $6,500,000. Floyd G. Browne & Assoc., 196 S. Main St., Marion, consult. engrs. CD 11/23/45.

Pa., Waynesburg—Waynesburg Boro, secondary treatment plant. $190,000. Richard J. Harman, State Chambers of Commerce Bldg., Harrisburg, consult. engr. F. L. Hoover, c/o owner, engr.

Tex., Brookshire—City, Sanitary Sys. $100,000. S. A. Russell, Rosenberg, consult. engr.

Tex., Greenville—City, voted bonds, sanitary sewerage sys. $350,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

Tex., Houston—Commercial Realty Co., 2202 Rosslyn St., sanitary sewers, $60,000; storm sewers, drainage, $62,500, in area of Lamar-Wesleyan sub-division.

Tex., San Antonio—W. H. Barnes Real Estate Co., 1418 Hildebrand St., sanitary sewers, $60,000; storm sewers, drainage, site earthwork, levelling, $65,000, north of Hill Country Estates.

Utah, Tooele—City, c/o Dale James, mgr., City Hall, outfall sewer and sewage treatment plant, $110,0000. C. J. Ullrich, 422 Ness Bldg., Salt Lake City, consult. engr. CD 4/26/45.

▲ **Va., Richmond**—City, City Hall, sewage treatment sys. $11,120,000. Greeley & Hansen, 220 S. State St., Chicago, Ill., consult. engrs. are preparing report.

BRIDGES

Neb., Beatrice—Gage Co., repairing bridges, culverts and county roads. $125,000. Lloyd Hanson, co. engr.

Net., Nebraska City—Otoe Co., Nebraska City, replace Little Nemaha Bridge, near Talmage. $200,000. Lester Ehlers, co. engr.

Neb., Omaha—City, underpass at Intersection of Dodge St. and Happy Hollow Blvd. $225,000, E. W. Woodbridge, city engr.

Neb., Plattsmouth—Cass Co., Plattsmouth, repairing bridges, culverts and county roads, $200,000. Frank Dall, co. engr.

Neb., Wahoo—Saunders Co., repairs, replacements for bridges and culverts, $200,000, W. J. Stewart, co. engr.

STREETS AND ROADS

Ala., Fairfield—City, resurf. Gary Ave. and wid'n. Valley Rd. $300,000. C. Hoyt Ellis, Stallings Bldg., Birmingham, consult. engr.

Calif., Glendale—City Council, 613 E. Broadway, imprv. Brand Blvd., Maple St. to Los Feliz Blvd. $200,000. CD 11/22/44.

Kan., Concordia—City, street resurf. $125,000. E. W. Powell, Concordia, city engr.

O., Huron—Village, repair and constr. sidewalks, 16,000 sq. ft. concrete, 47,000 sq. ft. relaid with concrete. $100,000. Weibert Henkelman, village engr.

O., Youngstown—City, street surf. program, $135,000, James C. Ryan, city engr. CD 3/20/44.

Okla., Oklahoma City—City, City Hall, wid'n., resurf. May Ave. from 10 to 23 Sts. $130,000. H. E. Chase, city engr. CD 5/15/50.

Tennessee—State Hy. Dpt., Nashville,

Coffee Co.—3.9 mi. access road between Arnold Engineering Development Center entrance and U. S. Hy. 41. $350,000.

† **Tex., Fort Sam Houston**—U. S. Govt., c/o Contracting & Purch. Officer, Bldg. 370, Fort Sam Houston, parking areas repairs and resurf. Inv. No. E 41-133-51-185, $75,000; access roads, parking area [illegible] area 2000 blk. Inv. No. E-41-133-51-168, $7[illegible] repairs, imprvs. to parking areas, in B.A. [illegible] area, Inv. No. E-41-133-51-184, $65,000; repairing and surf. hard standing areas, Inv. No. E-41-133-51-183, $80,000.

Tex., Greenville—City, voted bonds, street paving, $750,-000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

Tex., Houston—Harris Co., Court House, exten. Kirby Dr. 3 mi, $215,000. Howe & Wise, 4119 San Jacinto St., consult. engrs. CD 3/16.

Tex., San Antonio—Bexar Co. Comrs. Court, Precincts 1, 2, 3 and 4, San Antonio, road reconstr. in 4 precincts. $175,000. CD 3/28.

Tex., San Antonio—Sears, Roebuck & Co., C. W. Miller, pres. Romana Plaza paving and developing 2,000 auto parking area. $225,000.

Wash., Seattle—City, County-City Bldg., will not construct, wid'n. E. 47 and other streets in University Dist. $211,749. Project abandoned. CD 5/18.

EARTHWORK, WATERWAYS

Colo., Alamosa—The Mosca Irrigation Dist., Alamosa, repairs and reinforcement of dam and reservoir. $135,-000.

Tex., San Antonio—City, drainage, $7,000,000. Tom Coghill, city engr.

Tex., San Antonio—Sears, Roebuck & Co., c/o C. W. Miller, pres., Romana Plaza, earthwork, site development, grading, drainage, levelling, $200,000.

AIRPORTS

† **Del., New Castle**—WAREHOUSE, etc.—Dpt. Army, New Castle, warehouse and office at Air Base, $135,-000.

† **Tex., Lackland Air Force Base**—DINING HALLS—U. S. Govt., c/o Purch & Contg. Officer, Lackland Air Force Base, San Antonio, remodeling, rehabilitating 16 dining halls. $325,000. CD 3/30/50.

LATIN AMERICA

Chile, Santiago—Philco Co., Inc., Santiago, plans television transmission plant., $400,000.

Mexico, Celaya—Mexican Government, Sria. de E.P., Mexico City, plans technology institute, $300,000.

Mexico, Mexico City—Armazones Mordernos, S.A., Morelos, 110-807, Mexico City, plans optical frames factory. $250,000.

▲ **Venezuela, Caracas**—Republic of Venezuela, Caracas, plans plant for reduction of iron ore by petroleum gases. $10,000,000.

PUBLIC BUILDINGS

▲ **Calif., Culver City**—SCHOOL—Culver City Unified School Dist., 4034 Irving Pl., voted $2,850,000 bonds, addnl. school facilities. Daniel, Mann, Johnson & Mendenhall, 672 S. Lafayette Park Pl., Los Angeles, Calif., archts. CD 10/30/50.

▲ **Calif., Montebello**—SCHOOL FACILITIES—Montebello Unified School Dist., 123 S. Montebello Blvd., voted $1,500,000 bonds, school facilities. CD 5/9.

▲ **Calif., South Pasadena-San Marino**—SCHOOL—South Pasadena-San Marino Union High School Dist., 1327 Diamond Ave., defeated $2,200,000 bonds, high school and other facilities. CD 5/31.

▲ **Calif., Stockton**—SCHOOL—City, City Hall, voted $8,800,000 bonds, addnl school facilities. CD 4/30.

Colo., Durango—COURT HOUSE—Bd. Comrs. La Plata Co., Durango, 2 story, rein.-con. frame court house, jail and town hall, $500,000. C. Francis Pillsbury, 320 Midland Savings Bldg., Denver, consult. engr.

Colo., Glenwood Springs and Newcastle—SCHOOLS—Garfield County School Dist., Glenwood Springs, voted bonds high schools in Glenwood Springs and New Castle, $760,000. Atchison & Kloverstom, 1254 Monaco Parkway, Denver, consult. engrs. CD 4/24.

Ill., Moline—COURT HOUSE—Rock Island Co., Rock Island, defeated $375,000 bonds, court house addn., imprvs. $375,000.

Ind., Indianapolis—STORAGE—Corms. Marion Co., Court House, storage bldg. to house county road machinery, 21 and Northwestern Aves. $150,000.

Ky., Richmond—DORMITORY—Commonwealth of Kentucky, State Office Bldg., Frankfort, 2 story, brick, concrete men's dormitory, Eastern State College, $300,000.

Mich., Birmingham—GARAGE—City, Irene E. Henley, clk., 1 story, brick, concrete municipal garage, $100,000.

▲† **Mo., St. Louis**—OFFICE and PRINTING PLANT—Army Records Center and Army Publications Center, c/o Army Admin. Center, 4300 Goodfellow Blvd., Zone 20, will not construct 4 story office and printing plant on 37.7 acre tract between St. Louis Ave. and Terminal Ry. west of Goodfellow Blvd., $25,000,000. Project abandoned. CD 2/5.

▲ **Mo., St. Louis**—SCHOOL—Bd. Educ., V. Harry Rhodes, comr. School Bldgs., 911 Locust St., Zone

1, voted, $17,230,000 bonds June 5, school addns. CD 5/14.

Neb., North Platte—SCHOOL—Bd. Educ. plans by Davis & Wilson, 225 Stuart Bldg., Lincoln, Cody School addn. $325,000.

N. Y., Brooklyn—SCHOOL—Bd. Educ., 110 Livingston St., Zone 1, plans by William Hufner, c/o owner, alterations to P. S. 130, 70 Ocean Parkway, $375,000.

N. Y., Brooklyn—LIBRARY—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, plans by W. T. McCarthy, 654 Madison Ave., New York, Zone 21, 2 story public library, New Utrecht Branch, at 1735-47 86 St. $500,000. CD 1/21/44.

N. Y., Delmar—SCHOOL—Bd. Educ., Central School Dist. 6, Academy Park, Albany, plans by Henry L. Blatner, 11 N. Pearl St., Albany, school on 70 acre site. $600,000. CD 12/13/46.

N. C., Whiteville—HOSPITAL—Columbus County Hospital, Whiteville, $112,000 bond election June 26, enlarging hospital. $400,000. Holloway, Weber-Reeves, 1918 Hillsboro St., Raleigh, archts. CD 4/18.

▲ **O., Cincinnati**—DORMITORY—University of Cincinnati, Clifton Ave., Zone 20, plans by Potter, Tyler & Martin, 128 E. 6 St., Zone 1, 4 story brick, cut stone, concrete, steel mens dormitory. $1,300,000. James E. Allen, 914 Main St., consult. engr. CD 1/17/50.

O., Youngstown—ARMORY—Ohio National Guard, Fort Hayes, Columbus, armory within city on 25 acre tract, $350,000.

Pa., Conneaut Lake—SCHOOL—Conneaut Lake Junior Consolidated School Dist., plans by Kling & Frost, 661 Wick Ave., Youngstown, O., brick Junior-Senior High School, Sadbury Twp. $800,000.

Pa., Courtney—SCHOOL—Bd. Educ. of Union Twp., plans by Beall & Parkins, Washington, 1 story, bsmnt., 80x300 ft. brick grade school. $333,307. CD 7/26/48.

▲ **Tenn., Elizabethton**—PLANT—City, voted bonds, textile plant. $4,000,000.

Tex., Baytown—SCHOOL—Baytown Independent School Dist., Baytown, voted bonds, school. $500,000.

Tex., Beaumont—MUNICIPAL—City, City Hall, municipal bldg renovating and remodeling, $300,000. R. Clyde Black, city engr.

Tex., Cleburne—SCHOOLS—Cleburne Independent School Dist., c/o Supt. Schools, Cleburne, voted bonds May 31, 2 elementary schools, Junior-High school, Home Arts Bldg., music bldg. $950,000. Wilson & Patterson, 202 Majestic Bldg., Fort Worth, archts. CD 3/9.

† **Tex., Fort Hood**—SERVICE CLUB, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., constr. EM service club and gate house, Inv. No. Eng. 41-243-51-78. $300,000.

Tex., Greenville—PUBLIC BUILDINGS—City, voted bonds, public bldgs. $300,000. Freese & Nichols, 407 Dancliger Bldg., Fort Worth, consult. engrs.

Tex., Hearne—SCHOOLS—Hearne Independent School Dist., Hearne, defeated bonds, elementary school-gymnasium, $300,000; elementary school, $300,000.

Tex., Houston—POLICE ADMINISTRATION—City, City Hall, 900 Brazos St., voted bonds, police administration bldg. completion $600,000. L. Fugate, city engr. CD 2/3/50.

Tex., Houston—SHOP—City, City Hall, 900 Brazos St., voted bonds,, equipment and repair shop. $250,000. L. Fugate, city engr.

Tex., Longview—PHYSICAL EDUCATION, etc.—White Oak Consolidated School Dist., H. L. Jones, pres., Longview, plans by Preston M. Geren, 905 N. P. Anderson Bldg., Fort Worth, brick, tile, concrete White Oak Physical education and home economics. $300,000.

Tex., Port Arthur—HOUSING—Housing Auth. City of Port Arthur, Port Arthur, plans by Golemon & Rolfe, 915 Woodrow St., Houston, TEX. 34-2, Carver Courts Housing. Approx. $300,000. CD 1/31.

Tex., San Benito—SCHOOLS—San Benito Independent School Dist., San Benito, plans by Cocke, Bowman & York, 1220 W. Harrison St., Harlingen, Herth Wad School. $300,000; plans by Wm. C. Baxter, Mercantile Bldg., Weslaco, McCullich St. School, $300,000. CD 3/15.

Wash., Bremerton—SCHOOL—School Bd., Bremerton plans by Branch & Branch, Bremerton, school, Marion Ave. $330,000. CD 6/4.

Wash., Everett—SCHOOL—School Bd., Everett, plans by Harold Hall, Everett, Baker Heights School. $575,000. 11/16/50.

Wash., Longview—SCHOOLS—School Bd., Longview, grade school, $360,000; complete Junior High School $500,000. CD 11/26/48.

COMMERCIAL BUILDINGS

▲ **Calif., Los Angeles**—HOSPITAL—Permanente Foundation, 280 W. McArthur Blvd., Oakland, plans by Wolff & Phillips, Pearson 4 Ave. Bldg., Portland, Ore., 7 story, rein. con. hospital. $2,300,000.

Calif., Santa Ana—DWELLINGS—Wilshire Construction & Finance Co., 5477 Serrano Dr., Long Beach, plans by T. J. Russell, 533 E. Ocean Blvd., Long Beach, 143 frame, stucco dwellings at Santa Clara and Santiago Sts. Approx. $500,000. Don Hilliard, 122 E. 11 St., consult. engr.

▲ **Ill., Nauvoo**—CONVENT—Sisters of St. Benedict, plans by Edo J. Belli, 8 S. Dearborn St., Chicago, Zone 3, convent and girls school, $1,500,000.

Md., St. Mary's City—COLLEGE—St. Mary's Seminary Junior College, St. Mary's City, plans by Jos. J. Baldwin, 927 15 St. N. W., Wash., D. C., masonry college bldg. $500,000.

Mich., Detroit—CHURCH—Livernois Baptist Parish, c/o Lee M. Butler, archt., 19111 Asbury Park, 1 story, bsmnt., brick, steel, stone church, Livernois Ave. $300,000.

Mo., St. Louis Co.—CHURCH, etc.—St. Louis Archdiocese of Catholic Church, Archbishop Joseph E. Ritter, 3810 Lindell Blvd., St. Louis, Zone 8, church, school, rectory and convent, on 10 acre tract on east side Woodson Rd., 1 mi. south of Natural Bridge Rd. $300,000.

▲ **N. Y., Brooklyn**—APARTMENTS—Jacob Schneider, 16 Court St., Zone 2, plans by Kavy & Kavovitt, Inc., 44 Court St., Zone 2, five 6 story apartments, 2531-2553, 2552-2472 and 2514-2542 E. 7 St.; 701-725 Gerald Court and 702-716 Kathleen Pl. $2,024,400.

N. Y., New York—APARTMENT—Hudson Drive Corp., 1775 Broadway, plans by Melvin Kessler, 118 E. 28 St., 11 story apartment at Henry Hudson Parkway and 254 St. $850,000.

▲ **N. Y., New York**—OUT PATIENT—St. Lukes Hospital, 113 St. and Amsterdam Ave., plans by York & Sawyer, 101 Park Ave., Zone 17, 13 story out patient bldg., 1091 Amsterdam Ave. $8,000,000. CD 11/1.

▲ **N. C., Raleigh**—HOSPITAL—Rex Hospital, St. Marys St., 100-125 hospital bed addn. Approx. $2,000,000.

O., Lancaster—SHOPPING CENTER—Gorsuch Enterprises, Frank Gorsuch, pres., Lancaster, shopping center, $500,000.

▲ **O., Piqua**—HOSPITAL—Dettmer Hospital Bd. Governors, 1719 S. Market St., Troy, plans by Sam Hannaford & Sons, Dixie Terminal Bldg., Cincinnati, 101-bed brick, concrete, steel, stone hospital, boiler house, sewage disposal plant, paving, between cities of Troy and Piqua. $2,000,000. Robenstein & Schuster, 9 and Main Sts., Cincinnati, consult. engrs. CD 8/3/45.

▲ **Okla., Oklahoma City**—CLASS ROOM, SCIENCE—Oklahoma City University, 2501 N. Buckwalder St., Zone 6, plans by Winkler & Reid, Kerr McGee Bldg., addnl. classroom and science bldgs. $2,000,000.

▲ **Pa., Pittsburgh**—DORMITORY—Duquesne University, 801 Bluff St., plans by Robert O'Conner & Walter Kilham, 101 Park Ave., New York, N. Y., men's dormitory, $1,000,000.

S. D., Sioux Falls—Y.W.C.A. BLDG.—Young Women's Christian Assn., 221 S. Dakota St., plans by Harold Spitznagel and J. A. Schoenherr, National Bank Bldg., Y.W.C.A. bldg. $350,000. CD 4/4.

Tenn., Memphis—SHOW ROOMS, OFFICES, etc.—Hardwick & Son, c/o Geo. Mahan, Jr., archt. Modern Arts Bldg., steel, concrete, show rooms, sales rooms, general offices, sales bldg. $300,000.

Tex., Dallas—APARTMENTS—W. H. Cothrum & Co., 2116 N. Field St., some addnl. 2 story Negro apartments between Expressway and Myrtle St. $350,000.

▲ **Tex., Fort Worth**—APARTMENTS—E. E. Cloer, Inc., 2825 Crockett St., plans by Charles E. Armstrong, 351 Majestic Bldg., 40 two story apartments with 228 living units, brick, concrete fdn., Westridge Ave., Unit No. 3. $1,000,000.

Tex., Houston—DWELLINGS—Forney & Co., 2702 Sackett St., plans by Dunaway & Jones, 4919 Montrose Blvd., addnl. 30 dwellings, in area of Glenmore Forest addn. $338,000.

Tex., Houston—DWELLINGS—Homer Y. Jones, Sterling Bldg., 30 brick, masonry dwellings, concrete slab fdn., off Ojemann Rd. $425,000.

▲ **Tex., San Antonio**—DEPARTMENT STORE—Sears, Roebuck & Co., c/o C. W. Miller, pres., Romana Plaza, general department store, 18 acre site on south side at Southwest Military Dr. and Pleasanton Rd. $2,500,000.

▲ **Utah, Salt Lake City**—OFFICE, etc.—A. L. Mason & Assoc., Judge Bldg., 22 story office and apartment, S. Temple and 1st Ave. $8,000,000.

Utah, Ogden—HOUSING—U. S. Eng., 74 New Montgomery St., San Francisco, Calif., construct, finance, manage 53 Wherry housing units at Ogden General Depot, Woods & Woods and Young & Hansen, 19 W. South Temple St., Salt Lake City, archts.

Utah, Tooele—HOUSING—U. S. Eng., 74 New Montgomery St., San Francisco, Calif., construct, finance, manage, 150 Wherry housing units at Deseret Chemical Depot, William J. Monroe, Jr., 506 Atlas Bldg., Salt Lake City, archts. CD 12/6/50.

Utah, Tooele—HOUSING—U. S. Eng., 74 New Montgomery St., San Francisco, Calif., construct, finance, manage 24 Wherry housing units at Tooele Ordnance Depot, Associated Architects & Engineers, 19 W. South Temple St., Salt Lake City, archts. CD 10/10.

Wash., Seattle—CHURCH, etc.—Gethsamane Lutheran Church, 9 Ave. and Stewart St., plans by J. Emil Anderson, c/o Young & Richardson, Central Bldg., church and parish unit. $450,000. CD 6/4.

▲ **Wash., Seattle**—HOSPITAL—Sound View Hospital Corp., c/o E. H. Savage, 4424 California Ave., Seattle, hospital. $4,650,000.

Wash., Seattle—EDUCATIONAL—University Methodist Temple, E. 43 St. and 15 Ave. N. E., Zone 5, education bldg. $350,000.

▲ **Que., Cap Rouge**—SHELTER UNIT—Hospice St. Charles, Cap Rouge, children's shelter unit, Approx. $1,000,000.

INDUSTRIAL BUILDINGS

▲ **Ariz., Rillito**—PLANT EXPANSION—Arizona Portland Cement Co., Rillito, plant expansion, $2,945,758.

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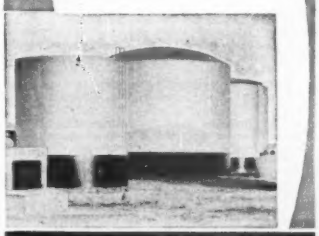

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Calif., Berkeley—LABORATORY—California Ink Co., 711 Camelia St., plans by Michael Goodman, 2161 Shattuck Ave., 2 story, 16,000 sq. ft., rein. con. research laboratory, 4 and Camelia Sts. Eric Peterson, Albany, consult. engrs.

▲ **Conn., Middletown**—POWER PLANT—The Hartford Electric Light Co., 266 Pearl St., Hartford, Zone 15, and The Connecticut Power Co., 31 Union St., New London, 65,000 kilowatt capacity, Power Plant, Laurel Section between River Rd. and Connecticut River, $10,000,000.

Ill., Chicago—FACTORY—Stronghold Screw Products Co., 216 W. Hubbard St., plans by Friedman, Alschuler & Sincere, 233 W. Jackson St., Zone 6, factory with office, Waveland and Kilbourn Sts. $900,000.

Ill., South Beloit—FACTORY—Chas. H. Besly & Co., 118 N. Clinton, Chicago, Zone 6, plans by De Young, Moscowitz & Rosenberg, 205 E. 42 St., New York, 17, N. Y., machine tool mfg. factory, $900,000.

▲ **Ind., Columbus**—PLANT—Cummins Engine Co., Inc., Columbus, 3rd unit engine plant, $6,000,000.

▲ **Ind., Marion**—FACTORY—Westinghouse Electric Corp., Union Bank Bldg., Pittsburgh, Pa., factory on 74 acre tract on State Route 29.

▲ **Ky., Covington**—PLANT—Sohio Petroleum Co., E. S. Bale, mgr., Latonia Refinery, Covington, gasoline-cracking plant, $5,000,000.

▲ **Mich., Flint**—PLANT—Buick Motor Div., General Motors, Flint, Zone 2, 1,600,000 sq. ft. plant, to mfg. Wright Sapphire jet aircraft engines, north of Flint, 2 story, 721x1,668 ft., steel, brick building with 2nd story, 275 ft. wide running 1,688 ft. length, admin. bldg. and power plant, Beecher Twp., Genesse Co. $15,000,000.

Mo., Farmington—FACTORY—Race Stix Shirt Co., Paul Paulsen, supt., Farmington, 1 story, 47x130 ft., brick shirt factory addn.

▲ **N. Y., Rochester**—PLANT—General Motors Corp., Delco Appliance Div., 3-230 General Motors Bldg., Detroit, Mich., 1 story 500,000 ft. plant, just off Lyell Ave. near Barge Canal. Approx. $5,000,000.

O., Norwood—FOUNDRY, etc.—Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., construction and equipping new foundry, warehouse, $500,000.

Okla., Elk City—PLANT—Shell Oil Co., Inc., Mayo Bldg., Tulsa, enlarge present recycling gasoline plant from 100 to 150 million cu. ft. per day, $300,000.

Pa., Clearfield—PLANT—Clearfield Products Co., Clearfield, brick, plant, 2 tunnel kilns, bldg., mfg. of ladle brick, $150,000. D. W. Hendryx, Darlington Rd., Pittsburgh, consult. engr.

Pa., McKeesport—WAREHOUSE—Firth Sterling Steel & Carbide Corp., McKeesport, 1 story, 26x227 ft., steel warehouse, $100,000. W. P. Nolan, c/o owner, engr.

Pa., Osgood—FACTORY—R. D. Werner Co., Greenville, 85x200 ft. factory expansion mfg. aluminum and aluminum alloys; 100,000 gal. water tank; 70 ft. vertical heat treatment furnace, new $200,000 extruder, $750,000.

Pa., Phila.—FACTORY—American usiness Systems, 1229 Belmont Ave., factory. Approx. $250,000.

Pa., Pittsburgh—WAREHOUSE—Associated Grocers, Inc., 9 Said St., plans by Lacy, Atherton & Davis, Wilkes-Barre, 1 and 2 story, 100x180 ft., 186x380 ft., brick, concrete block, steel, warehouse, Scott Twp. $525,000.

▲ **Tex., El Paso**—CRACKING UNIT—Standard Oil Co. of Texas, Womble bldg., houdry catalytic cracking unit at refinery. $5,500,000. CD 5/23.

Tex., Houston—PLANT—Rig Maintenance Supply, Inc., 5116 Navigation St., plant, on 1 acre site. $250,000.

▲ **Va., Hopewell**—PLANT—Solvay Process Div. of Allied Chemical & Dye Corp., 61 Broadway, New York, N. Y., chlorine plant, $2,000,000.

Wyo., Basin—COMPRESSOR STATION—Montana-Dakota Utilities Co., 831 2 Ave. S., Minneapolis, Minn., compressor station, $200,000; dehydration unit, $175,000.

▲ **Alaska**—PLANT—Pugent Sound Pulp & Timber Co., Laurel St., Bellingham, Wash., pulp plant on Prince of Wales Island. $35,000,000. (Correction—Owners name and address.) CD 2/9.

Alta., Jumping Pound—PLANT—Shell Oil Co. of Canada, Ltd., 25 Adelaide St. E., Toronto, Ont., sulphur extraction plant. $500,000.

▲ **Ont., Kingston**—STATION—Canadian National Ry. B. W. Wheelwright, ch. engr., 360 McGill St., Montreal, Que., new station, $1,000,000. G. F. Drummond, c/o owner, archt.

▲ **Ont., Toronto**—SHOP—Massey-Harris Co. Ltd., 915 King St. W., machine shop, $2,500,000. CD 11/16/50.

UNCLASSIFIED

Alabama—RURAL DISTRIBUTION LINES—Pioneer Electric Co-operative, Greenville, 100 mi. rural distr. lines and sys. imprvs., Butler Co., $580,000.

Kansas—RURAL DISTRIBUTION LINES—Radiant Electric Co-operative, Fredonia, 75 mi. rural distr. lines, headquarters facilities, Wilson Co., $135,000. Flora Engineering Co., 1717 E. Colfax Ave., Denver, Colo., consult. engr.

▲ **Louisiana-Texas**—GAS PIPE LINE—Mississippi River Fuel Corp., 407 N. 8 St., St. Louis 1, Mo., 98 mi. natural gas pipe line extending from Dubach, La. to Waskom and Woodlawn gas fields in Harrison Co., Tex. $5,135,070.

Mo., Linn—WAREHOUSE—Three Rivers Electric Co-operative, Linn, plans by H. A. Casey, Holland Bldg., Springfield, warehouse, shop and service bldg. with offices, $140,000.

Montana—RURAL DISTRIBUTION LINES—Lincoln Electric Co-operative, Eureka, 28 mi. rural distr. lines, incl. two-way radio, Rexford, Lincoln Co. $125,000. J. R. Pitman, Eureka, consult. engr.

Montana—RURAL DISTRIBUTION LINES—Yellowstone Valley Electric Co-operative, Huntley, 43 mi. rural distr. lines, Yellowstone Co. $117,000, Ward & Richtmire, Huntley, consult. engr. CD 5/20/49.

† **N. M., Las Cruces**—MISSILE LAUNCHING FACILITIES—U. S. Eng., 2134 E. Central Ave., Albuquerque, addnl. missile launching facilities at White Sands Proving Ground, incl. railway track line; 10 mi. underground-above ground power line, Serial No. Eng. 29-005-51-58, $200,000.

▲ **O., Painesville**—DUST CONTROL PROJECT—Diamond Alkali Co., Oliver Bldg., Pittsburgh, Pa., dust control project, incl. imprvs. at power plant, cement plant, millroom and pure calcium operations, imprvs. at pulverized coal dept. $1,000,000.

Oklahoma—RURAL DISTRIBUTION LINES—Cotton Electric Co-operative, Walters, 181 mi. rural distr. line and sys. imprvs., Cotton Co., $290,000.

▲ **Oklahoma**—RURAL DISTRIBUTION LINES—Tri-County Electric Co-operative, Hooker, 1,304 mi. rural distr. line and sys. imprvs., Texas Co., $1,860,000.

Pa., Phila.—PIER—Pennsylvania R. R., J. L. Gressitt, ch. engr., 30 and Market Sts., rebuild Pier 46 south, $500,000.

Tenn., Chattanooga—DOCK—V. P. Serodino, Inc., 7 W. N. Bend St., Cincinnati, O., coal loading dock. Approx. $100,000.

▲ **Tenn., Memphis**—PARKING LOT—City, Bd. Comrs., City Hall, plans by Nathan & Rice, Falls Bldg., 4 story, concrete, steel parking lot under Chicasaw Park for 500 cars. $2,000,000. Gardner & Howe, N. Main Bldg., consult. engrs. Wm. Fowler, c/o owner, engr.

▲ **Texas and Louisiana**—GAS LINE—Mississippi River Fuel Corp., 407 8th St., St. Louis, Mo., 11 mi. 10 in. gas line in Waskom area, Harrison Co., Tex., $185,070; natural gas line gathering system, at Woodlawn, Harrison Co., Tex., $489,000; 98 mi. 18 and 20 in. gas line from Lincoln Parish, La. to Waskom, Harrison Co., Tex., $4,950,000. CD 12/3/46.

Tex., Baytown—COUNTY FAIR PROJECT—Baytown Chamber of Commerce, Baytown, county fair project on 40 acre tract, $125,000.

Tex., Greenville—ELECTRIC SYSTEM—City, voted bonds, electric power sys. $950,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

Wyo., Greybull—GAS MAIN—Montana-Dakota Utilities Co., 831 2 Ave. S., Minneapolis, Minn., 16-mi. connecting gas main. $100,000.

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Conn., Hartford—B.A. 7/5—Bd. Contract & Supply, The Metropolitan Dist., Executive Offices, 115 Broad St., Hartford, Contr. 209, masonry filters and regulator house at filtration plant in Town of West Hartford. Plans deposit $20. CD 10/17/47.

BIDS ASKED—BUILDINGS

▲ **Conn., New Haven**—PHYSICAL EDUCATION, etc.—B.A. 7/6—State, State Office Bldg., Hartford, B/A-R-47A, physical education bldg., $450,000, Plans deposit $20; B/A R-47C, administration classroom and library $600,000, Plans deposit $25; B/A-4-47 B, boiler house, utilities, $250,000, Plans deposit $15, all at State Teachers College. CD 5/8.

N. H., Concord—OFFICE—B.A. 7/6—State Dpt. P. Wks., Hys., State House Annex, constr. 4 story state office bldg. with bsmnt. and two 2 story wings, rei.-con. constr. heating and ventilating, plumbing and electrical work and fixtures. Plans deposit $50. Extended date. CD 5/24.

Conn., Norwalk—HOSPITAL—B.A. 7/9—York & Sawyer, archts., 101 Park Ave., New York, N. Y., hospital Stevens St., for Norwalk Hospital, Norwalk, Conn. CD 10/18/50.

SOON LETS CONTRACTS—BUILDINGS

▲ **R. I., Westerly**—PLANT—Narragansett Electric Co., 49 Westminster St., Providence, R. I., soon lets contract 5,000 kilowatts, 5 diesel elec. generators, generating plant, elect. and auxiliary equip. $1,250,000. Chas. A. Maguire & Assoc., 1015 Turks Head Bldg., Providence, R. I., engrs. CD 4/13.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. Pub. Wks., 100 Nashua St., Boston,
Merritt-Chapan & Scott Corp., 79 Milk St., Boston, Mass., Low Bidder, **$1,746,491**, concrete substructure with granite facing, Meridian St. Bridge.
American Bridge Co., 1414 Statler Bldg., Boston, Mass., **$3,144,550**, concrete substructure with concrete deck, Meridian St. Bridge, Proj. U 345(1), Boston and Chelsea. Bids June 5.2 CD 5/14.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. Pub. Wks., 100 Nashua St., Boston,
V. Barietta Co., 10 Whipple St., Roslindale, Mass., Low Bidder, **$1,085,870**. 2 contiguous steel stringer bridges over B & M R R, Belmont; **$3,145,672**, Contr. C-1, substructure and approaches; **$1,229,047**, Contr. C-3, deck electric work and snow melting sys.
Bethlehem Steel Co., 75 Federal St., Boston, Mass. **$6,262,512**. Contr. C-2, steel superstructure.
Warner Bros., Inc., Sunderland, Mass., $86,191, single span half through steel truss bridge, concrete deck and approaches. Boston. Bids June 12. CD 5/18.

MASSACHUSETTS—Commonwealth of Mass., Dpt. Pub. Wks., 100 Nashua St., Boston, cancelled bids to have been opened June 22, surf. tr. Monson-Palmer, surf. tr. Sterling, curb R & R, Shrewsbury-Westborough. CD 6/13.

V. Barietta Co., 10 Whipple Ave., Roslindale, Mass. Low Bidder. **$960,029**. dredging, filling, roads, bridge, piers, etc., Fens Pond, BOSTON, MASS. State, Park Div., 20 Somerset St., Boston, Mass. Bids June 7.
Allied Engineering Corp., 70 Proctor St., Roxbury, Mass. Low Bidder. Contr. A, **$143,185**, Contr. B, **$122,907**. Pumping station, water mains, WRENTHAM, MASS. State, Dpt. Mental Health, 15 Ashburton Place, Boston, Mass. Bids June 8. CD 6/1.
RHODE ISLAND—State Div. Purchases, at office, Franklyn A. Adams, purch. agt. Smith St., Providence, R. I.
S & M Constr. Co., 30 Salmon St., Providence, R. I. Low Bidder, **$683,072**, rein.-con. pavement 1.045 mi. Bald Hill Road-Extens.-Quaker Lane and Centerville Road interchange, Centerville Road Bridge No. 42 and overpass consisting of concrete abutments, center pier and walls with I-beam superstructure, Kent Co. Bids May 23. CD 5/17.

LOW BIDDERS—BUILDINGS

▲ **J. J. Powers Co.**, 238 Main St., Cambridge, Mass. Low Bidder. **$1,534,400**. Senior High SCHOOL, Waltham St., LEXINGTON, MASS. Town, Supt. Schools, Lexington, Mass. Bids June 7. CD 5/31.

▲ **Calumet Constr. Co.**, 50 Calumet St., Roxbury, Mass. Low Bidder. **$2,938,800**. HOUSING, Proj. 22-1, near Everett Line, MALDEN, MASS. Malden Housing Auth., 90 Plainfield Ave., Malden, Mass. Bids June 12. CD 5/29.

▲ **Jefferson Constr. Co.**, 75 Frst St., Cambridge, Mass. Low Bidder. **$1,759,198**. HOUSING, Proj. PHA 20-1, Germantown, QUINCY, MASS. Quincy Housing Auth., City Hall Annex, Quincy, Mass. Bids June 7. CD 5/29.

J. P. Flynn, 26 Custom House St., Providence, R. I., Low Bidder. **$558,850**, SCHOOL, Stadium Ave., CRANSTON, R. I. City Supt. Schools, Park Ave., Cranston, R. I. Bids June 12. CD 5/29.

▲ **Brooklawn Constr. Co.**, 254 Prospect Ave., Hartford, Conn. Low Bidder. Base Bid -A, **$1,046,000**; Base Bid B **$1,042,000** 13-1, 100 rental HOUSING UNITS, Main and Brewer Sts., EAST HARTFORD, CONN. Town Housing Auth., 70 Cannon Rd., East Hartford, Conn. Bids June 12. CD 5/29.

▲ **E. & F. Constr. Co.**, 4 Wells St., Bridgeport, Conn., Low Bidder. **$1,679,000**, Junior High SCHOOL, North End, STRATFORD, CONN. Town, Stratford, Conn. Bids June 5. CD 5/22.

CONTRACTS—HEAVY CONSTRUCTION

▲† **M. A. Gammino Constr. Co.**, 728 Valley St., Providence, R. I., Contract Awarded. **$2,582,000**, runway extens., Naval Air Station, Spec. 28172, QUONSET, R. I. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass. Bids May 29. CD 6/12, under LB.

Paul Bacco & Son, Inc., 758 Summer St., Stamford, Conn. Contract Awarded. **$562,967**, C. trunk line, sanitary sewer, Canal St., Atlantic Sq., etc., STAMFORD, CONN. City, City Hall, Stamford, Conn. Bids Mar. 27, awarded June 1. CD 4/9, under LB.

CONTRACTS—BUILDINGS

▲ **Bonvicini Bldg. Co.**, 1500 S. Main St., Torrington, Conn. Contract Awarded. **$1,349,000**. HIGH SCHOOL, West of Worthington Ridge, BERLIN, CONN. Town, Town Hall, Berlin, Conn. Bids May 17, awarded June 12. CD 6/1, under LB.

▲ **Southern New England Constr. Co.**, 983 Main St., Hartford, Conn. Contract Awarded. **$1,090,000**. Contr. E-51-60 HOME for the Aged, Holcomb St., HARTFORD, CONN. City, 550 Main St., Hartford, Conn. Bids May 3, awarded June 5. CD 5/11, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 13, Pennsylvania
STREETS AND ROADS
July 13, 20, 27 Pennsylvania July 14 New York

N. J., Edgewater—B.A. 7/3—Mayor and Council, Boro of Edgewater, Municipal Bldg., sewage treatment and disposal plant and sewerage sys. addns. Contr. 1, treatment and disposal plant; Contr. 6, 4 pump houses; Contr. 2, electrical work-treatment plant; Contr. 7, electrical work for four pump houses. Plans deposit $50. Roscoe P. McClave, 600 Gorge Road, Cliffside Park consult. engr.
Md., Baltimore—PARKING STRUCTURE—Bids Asked—Central Parking Co., 216 E. Lexington St., 3 deck, 39x60 ft. rein.-con. off street parking structure, 309-11 W. Franklin St. $131,200.

BIDS ASKED—BUILDINGS

† **N. Y., Buffalo**—OFFICE—B.A. 7/11—U. S. Eng., Niagara and Bridge Sts., Buffalo, Zone 7, new bldg. addn., Buffalo District Office Corps. of Engineers, Serial NO. CIVENG 30-023-51-56.

LOW BIDDERS—HEAVY CONSTRUCTION

Lightning Electric Service Co., 11 Coes St., Newark, N. J. and **Emerson Garden Electric Co.**, 40 W. Scott Pl., Elizabeth, N. J., Low Bidders, **$395,443**, installing roadway and area lighting at 7 service areas, and 7 interchanges on N. J. Turnpike, Salem, Gloucester Camden, Mercer, Burlington Counties, Contr. 82, NEW JERSEY. New Jersey Turnpike Auth. 65 Prospect St., Trenton, N. J. Bids June 19. CD 6/6.
MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore.
Baltimore Contractors, Inc., 711 S. Central Ave., Baltimore, Md. Low Bidder. **$129,698**. structural steel superstructure and rein.-con floor for rein.-con. bridge, 2 spans 58 and 118 ft., 30 ft. roadway, sidewalks, over N. Y. P. & N. R. R. in Salisbury, Contr. WI 226-1-115, Wicomico Co. Bids June 12. CD 5/29.
W. E. Graham & Sons, Cleveland, N. C., Low Bidder. **$964,758**, grading, surf., 5.445 mi. Columbia-Atholton Spraggsville Rd., U. S. Rte. 29 connects west edge of Baltimore to Silver Spring known as Columbia Pike, Contr. HO 218-5-315, Howard Co., MARYLAND. State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. Bids June 12. CD 5/29.
P. Flanigan Sons, Inc., 2405 Loch Raven Blvd., Baltimore, Md. Low Bidder. **$77,373**. Contr. 1130, sheet asph. resurf.; **Baltimore Paving Co.**, 2600 N. Longwood St., Baltimore, Md., **$123,240**. Contr. 1132, sheet asph. resurf., BALTIMORE, MD. City, Bureau Hys., 303 Municipal Bldg., Baltimore 2, Md. Bids June 6. CD 5/29.

LOW BIDDERS—BUILDINGS

Gardella & Gray, Inc., 1776 Broadway, New York 19, N. Y., Low Bidder. **$779,715**, James V. Forrestal SCHOOL, BEACON, N. Y. Bd. Educ., Beacon, N. Y. Bids May 29. CD 5/16.
▲ **Mancuso Bros., Inc.**, 601 Blandina St., Utica, N. Y., Low Bidder, **$1,283,295**, central SCHOOL bldg. and school BUS GARAGE and SHOP, Chapel St., CANASTOTA, N. Y. Bd. Educ., Central School Dist., Canastota, N. Y. Bids May 22. CD 5/16.
David Shaw, 215 Montague St., Brooklyn, N. Y. Low Bidder, **$977,890**, construct, manage and finance, Title 8 HOUSING at Army War College, CARLISLE, PA. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids June 8. CD 5/18.

LOW BIDDERS—BUILDINGS

▲ **Vermilya-Brown Co., Inc.**, 100 E. 42 St., New York, 17 N. Y. Low Bidder. **$1,790,000**, general construction Waksman INSTITUTE of Microbiology, on Campus, NEW BRUNSWICK, N. J. Bd. Trustees Rutgers University, New Brunswick, N. J. Bids May 29. CD 4/25.

CONTRACTS—HEAVY CONSTRUCTION

† **James D. Morrissey, Inc.**, 919 Frankford Ave., Phila., Pa. Contract Awarded, **$710,852**, alert and parking aprons approaches, appurtenances McGuire Air Force Base, FORT DIX, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa. CD 6/12, under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore,
Thomas, Bennett & Hunter, Inc., Westminster, Md., Contract. Awarded, **$570,354**, wid'n., grading, resurf. 3.058 mi. U. S. Rte. 40, Contr. F 496-1-615, Frederick Co. CD 1/17 under L.B.

CONTRACTS—BUILDINGS

MacAsphalt Constr. Corp., 33-15 Lawrence St., Flushing, L. I. **$537,715**, Contract Awarded, raising top of dike and rehabilitation runways at La Guardia Airport, Contr. LGA-220.002, JACKSON HEIGHTS, N. Y. Port of New York Auth., 111 8 Ave., New York 11, N. Y. Bids May 29. CD 5/17.

Peter Camilli & Sons, Pleasantville, N. Y., Contract Awarded. **$575,000**, SCHOOL, Midland Ave. between Apawamis Ave. and Goldwin St., RYE, N. Y. Bd. Educ., Parsons St., Rye, N. Y. Bids Mar. 19. CD 3/1.

▲ **S. S. Silberblatt, Inc.**, 25 W. 45 St., New York, 19, N. Y., Contract Awarded, **$4,393,100**, N. J. 15-1, Andrew Jackson HOUSING; **James Mitchell, Inc.**, 75 Montgomery St., Jersey City, N. J., **$692,000**, N. J. 15-2, Christopher Columbus Housing, HOBOKEN, N. J. Hoboken Housing Auth., 66 Hudson St., Hoboken, N. J. Bids Apr. 24.

▲ **S. S. Silberblatt, Inc.**, 25 W. 45 St., New York 19, N. Y., Contract Awarded. **$2,985,100**, Montgomery Gardens HOUSING, JERSEY CITY, N. J. Jersey City Housing Auth., 614 Newark St., Jersey City, N. J. CD 6/27/50.

Belli Co., Broad St. Bank Bldg., Trenton, N. J., Contract Awarded, **$613,000**, general contract Junior high SCHOOL, LAWRENCEVILLE, N. J. Lawrence Twp. Bd. Educ. Craven Lane, Lawrenceville, N. J. Bids June 4, awarded June 20. CD 6/11, under LB.

Gumina Building & Constr. Co., Larch Ave., New Brunswick, N. J., Contract Awarded. **$515,245**, general construction 81-low rent APARTMENTS, Frazier St., TRENTON, N. J. Trenton Housing Auth., 875 New Willow St., Trenton, N. J. Bids June 14, awarded une 19. CD 5/28.

Moyer Bros., 2605 Beale Ave., Altoona, Pa. Contract Awarded, **$679,418**, 3 and 4 story, E-shaped, brick, concrete HOLY FAMILY OF NAZARETH HOME, ALTOONA, PA. Mercy Hospital, Altoona, Pa. CD 6/7, under LB.

Benjamin Steinman, Inc., 25 S. 59 St., Phila., Pa., Separate Contracts, **$720,000**, RESIDENTIAL DEVELOPMENT 15 and 16 Sts., CHESTER, PA. I. W. Levin, 1531 Belmont St., Phila., Pa., archt.

▲ **Caristo Constr. Co.**, 26 Court St., Brooklyn, N. Y., Contract Awarded, **$3,867,000**, Federal Housing Proj. PA-18 460-unit APARTMENTS, Bedford Dwellings, PITTSBURGH, PA. Housing Auth. of City of Pittsburgh, City County Bldg., Pittsburgh, Pa. Bids May 22. CD 6/6, under LB.

W. & A. Realty Co., 455 Argyle Rd., Drexel Hill, Pa., Separate Contracts, **$800,000**, residential development, Silver Lake York Rd., WILLOW GROVE, PA.

▲† **Curtis Builders, Inc.**, 1006 M St. N.W., Wash., D. C., Contract Awarded, **$1,214,000**, RESEARCH LABORATORY BLDGS. 74 and 76 at Naval Research Laboratory, NOY 20444, Spec. 26353, WASH., D. C. Potomac River Naval Command, Naval Gun Factory, Wash., D. C. Bids May 21, awarded June 15. CD 6/12, under LB.

En Jay Constr. Co., 105 W. Madison Ave., Chicago, 3, Ill. Contract Awarded, **$500,000**, 50,000 sq. ft. FACTORY and OFFICE, DOVER, DEL. Coty, Inc., Salisbury Rd., Dover, Del. Awarded June 7. L. P. Sumarkoff, 105 W. Madison Ave., Chicago, 3, archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 11, Louisiana

BIDS ASKED—BUILDINGS

S **C. Aiken**—SCHOOL—B. A. 7/6—Aiken Co., Aiken, Schofield School. Plans deposit $50. Helen S. Irvin, 722 Greene St., Augusta, Ga., archt.

LOW BIDDERS—HEAVY CONSTRUCTION

† **Thorington Constr. Co.**, 205 E. Canal St., Richmond, Va. Low Bidder. **$489,888**. Laboratory addn. to high speed tunnel, LANGLEY FIELD, VA. National Advisory Comm. for Aeronautics, Langley Field, Va.

▲† **Virginia Eng. Co., Inc.**, Painter and Granby Sts., Norfolk, Va. Low Bidder. **$1,570,000**. Sewerage systems, Norfolk Naval Shipyard, NOY 27111, PORTSMOUTH, VA. Dpt. Navy, U. S. Naval Base, Norfolk 11, Va. Bids June 5. CD 5/23.

† **Diamond Constr. Co.**, 14 and M Sts. S. E., Wash., D. C. Low Bidder. **$592,444**. Finger piers, B, C, D and E at Norfolk Naval Base, NOY 26904, NORFOLK, VA. Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, NORFOLK 11, VA. Bids June 12. CD 5/31.

Crosby Constr. Co., Union, S. C. Low Bidder. **$165,692**. water treatment plant, SUMMERVILLE, S. C. City, Summerville, S. C. Bids June 13. CD 5/31.

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† **Paul Smith Constr. Co.**, 310 N. Rome Ave., Tampa, Fla. Low Bidder. **$117,249.** Project JAX 51-14, crash fire station at Patrick Air Force Base, COCOA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. CD 4/4.

† **Nichols Constr. Co.**, 11900 N.W. 19 Ave., Miami, Fla. Low Bidder. **$296,617.** jet fuel pump line, JACKSONVILLE, FLA. Dpt. Navy, Naval Base, S. C. Bids June 15. CD 6/5.

† **Ivy H. Smith Co.**, 1525 San Marco Blvd., Jacksonville, Fla. Low Bidder. **$409,498.** jet aviation fuel storage, JACKSONVILLE, FLA. Dpt. Navy, Naval Base, S. C. Bids June 15. CD 6/5.

City, Rosedale, Miss. rejected bids June 5. sanitary sewer imprvs., ROSEDALE, MISS. L. B. **$208,000.** CD 6/18, under LB.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

W. R. Aldrich & Co., 2493 Baywood Ave., Baton Rouge, La. Low Bidder. **$476,912.** Aggregate surf. 7.799 mi. Pecan Poland, Hy. S. R. 26, S. P. 207-01-08, Vermillion Parish.

T. L. James & Co., Inc., Ruston, La., **$975,197**, grading, concrete bridges, underpass 4.149 mi. Stonewall-Keithville Hy. S. R. 1, S. P. 25-08, F. A. Proj. F 68, Caddo Parish. Bids June 13. CD 5/17.

Boh Bros. Constr. Co., 2400 Cypress St., New Orleans, La. Contract Awarded. **$786,725.** Contr. 246-D, approx. 5,520 lin. ft. 12.5 ft. canal, NEW ORLEANS, LA. Sewer & Water Bd., 526 Carondelet St., New Orleans, La. CD 6/18, under LB.

† **Stucky-Ross Co.**, Fredericktown, O. Low Bidder. **$190,507.** instrument landing facilities, Fort Campbell Air Force Base, FORT CAMPBELL, KY. U. S. Eng., 830 W. Broadway, Louisville, Ky. Bids June 14. CD 5/23.

▲† **R. P. Farnsworth & Co.**, 1515 S. Salcedo St., New Orleans, La. Low Bidder. **$6,185,526.** Addnl. aviation training facilities at Memphis Naval Air Station, MILLINGTON, TENN. Dist. P. Wks. Office, Box 365, Charleston Naval Base, B. C. Bids June 15.

LOW BIDDERS—BUILDINGS

▲ † **Virginia Engineering Co.**, Newport News, Va. Low Bidder. **$7,411,000.** 7 SCHOOL development and experimental facilities and motor pool, FORT EUSTIS, VA. U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. Bids June 13. CD 2/9.

▲ **F. S. Wisdre**, 829 Quincy St. N. W., Wash., D. C. Low Bidder. **$3,490,550.** construct, manage, and finance 412 HOUSING units, FORT EUSTIS, VA. U. S. Eng., foot of Front St., Norfolk, Va. Bids June 13. CD 5/31.

▲ **Frank H. Conner Co.**, 711 S. Tryon St., Charlotte, N. C. Low Bidder. **$2,428,500.** 400 HOUSING units, NORFOLK, VA. Norfolk Redevelopment & Housing Auth., Norfolk, Va. Bids June 13. CD 5/16.

R. R. Richardson & Co., 25 and Newport Ave., Norfolk, Va. Low Bidder. **$798,000.** Lakehurst Elementary SCHOOL, NORFOLK, VA. City, Norfolk, Va. CD 5/24.

▲ **Artley Co.**, 504 E. Bay St., Savannah, Ga. Low Bidder. **$2,421,600.** 216-unit low rest HOUSING, CHARLESTON, S. C. Charleston Housing Auth., 20 Franklin St., Charleston, S. C. Bids June 12. CD 5/24.

Geo. L. Fuller Constr. Co., 202 13 St., Augusta, Ga. Low Bidder, **$788,058,** HOUSING Units, ELBERTON, Ga. Elberton Housing Auth., Elberton, Ga. Bids June 14. CD 5/24.

Gilbert Beers, 489 Bishop St., N.W., Atlanta, Ga. Low Bidder, **$578,000.** 80 HOUSING units, MONROE, GA. Monroe Housing Auth., Monroe, Ga. Bids June 14. CD 5/23.

▲ **Morgan-Holloman Constr. Co.**, Tuscaloosa, Ala., Low Bidder, **$1,338,700,** HOUSING units, FLORENCE, ALA. Florence Housing Auth., Florence. Bids June 14. CD 5/25.

Currie & Conley, Raleigh, Miss. Low Bidder. **$829,980.** Poplar Springs and Oakland Heights Elementary SCHOOLS, MERIDIAN, MISS. Meridian Municipal Separate School Dist., Meridian, Miss. Bids June 15. CD 5/31 and 5/25.

Hays & Nicoulin, Inc., 930 Franklin St., Louisville, Ky. Low Bidder. **$400,000.** brick, stone 2 wings Catholic ORPHANAGE, ANCHORAGE, KY. Diocese of Kentucky, Bishop J. A. Floersch, Anchorage, Ky. D. X. Murphy & Bros., Louisville Trust Bldg., Louisville, Ky., archts. E. R. Ronald Assoc., 554 S. Third St., Louisville, Ky., engrs.

Geo. Katterjohn Constr. Co., Paducah, Ky. Low Bidder. **$889,734.** 100 HOUSING units, PADUCAH, KY. Paducah Municipal Housing Comn., Paducah, Ky. Bids June 14. CD 6/1.

J. E. Dunn, Nashville, Tenn., Low Bidder, **$618,000,** 80 HOUSING units, Tenn. 11-1; **Chambers Lumber Co.**, Athens, Ala., **$343,671,** 45 HOUSING units, Tenn. 11-2, PULASKI, TENN. Pulaski Housing Auth., Pulaski, Tenn. Bids June 8. CD 5/16.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Blythe Bros. Co.**, 2911 Hutchinson Ave., Charlotte, N. C., and **Ralph E. Mills Co., Inc.**, 1210 Tennessee St., Salem, Va. Contract Awarded, **$4,804,210,** exten. runways at East Field of Norfolk Naval Air Station, NOY 27129, NORFOLK, VA. CD 5/17, under LB.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh.

T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro, N. C., Contract Awarded, **$1,377,672,** bridge over Bogue Sound (Inland Waterway) between Morehead City and Atlantic Beach 0.697 mi. Proj. 2037, Carteret Co. Bids May 8, awarded June 15. CD 5/11, under LB.

▲† **Nello L. Teer Co.**, Durham, N. C. Contract Awarded. **$2,749,000.** exten. runways for jet operations, NOY 23453, Spec. 25280, CHERRY POINT, N. C. Dist. Pub. Wks. Office, Box 365, Bldg. 12, Naval Base, Charleston, S. C. CD 6/15, under LB.

GEORGIA—State Hy. Dpt., Atlanta, Ga.

Tidewater Constr. Corp., 538 Front St., Norfolk, Va. Contract Awarded, **$763,533,** bridge on Jekyll Creek on Brunswick to Jekyll Island Rd., F 007-4 (1), Glynn Co. Bids June 8. CD 5/15.

† **Intrusion Prepakt, Inc.**, Union Commerce Bldg., Cleveland, O., Contract Awarded. **$524,471,** lock and fixed-crest spillway of Jim Woodruff dam near Chattahoochee, FLORIDA. U. S. Eng., P. O. Box 1169, Mobile, 7, Ala.

† **Okeechobee Constr. Co.**, 1401½ Stockton St., Jacksonville, Fla. Contract Awarded, **$142,121,** railroad spur at Pinecastle Air Force Base, ORLANDO, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. CD 1/31.

▲ **Blythe Bros. Constr. Co.**, 2911 Hutchinson Ave., Charlotte, N. C. Contract Awarded, **$1,411,070,** Sect. A-1; **Christie, Hutchison & Burton,** 812 S. 27 St., Birmingham, Ala., **$889,090,** A-2, Village Creek collecting sewerage sys., BIRMINGHAM, ALA. Jefferson Co., Court House, Birmingham, Ala. Bids June 4. CD 6/15, under LB.

▲† **R. P. Farnsworth & Co., Inc.**, 1515 S. Salcedo St., New Orleans, La. Contract Awarded. **$1,068,477.** concrete frame, masonry mess hall and barracks, Barksdale Air Force Base, Inv. 51-38, SHREVEPORT, LA. U. S. Eng., 300 Broadway, Little Rock, Ark., Bids June 13, awarded June 14. CD 5/31.

Warren Bros. Roads Co., First National Bank Bldg., Birmingham, Ala. Contract Awarded. **$250,000.** asph. resurf. all roads in camp area, FORT CAMPBELL, KY. U. S. Eng., 830 W. Broadway, Louisville, Ky.

Ruby Constr. Co., Madisonville, Ky., Low Bidder. **$576,642.** 398 acre water reservoir, MADISONVILLE, KY. City, Madisonville, Ky. Bids June 12. CD 5/11.

CONTRACTS—BUILDINGS

C. L. Lewis, Lynchburg, Va. Contract Awarded. **$753,000.** HOSPITAL, SOUTH BOSTON, VA. Halifax Community Hospital Assn., South Boston, Va. CD 4/18. under LB.

▲ **Dwight L. Phillips**, 309 W. Palmer St., Charlotte, N. C. Contract Awarded, **$10,000,000,** construct, manage finance 1,421 HOMES at Marine Air Station, CHERRY POINT, N. C. Sixth Naval Dist., Naval Base, S. C. Bids Apr. 18. CD 4/26, under LB.

Southern Constr. Co., Daniel Field, Augusta, Ga. Contract Awarded. **$624,385.** HOUSING units, ABBEVILLE, S. C. Abbeville Housing Auth., Abbeville, S. C. Bids June 7. CD 6/15, under LB.●

J. A. Jones Constr. Co., 209 4 St., Charlotte, N. C. Contract Awarded. **$526,068.** Lexington High SCHOOL, LEXINGTON, N. C. City, Lexington, N. C. CD 5/22, under LB.

▲ **J. A. Jones Constr. Co.**, 209 W. 4 St., Charlotte, N. C. Contract Awarded. Approx. **$1,000,000** research LABORATORY, WINSTON-SALEM, N. C. R. J. Reynolds Tobacco Co., Reynolds Bldg., Winston-Salem, N. C. Bids June 7. CD 5/24.

Geo. A. Creed & Son, 1618 Sumter St., Columbia, S. C. Contract Awarded. **$519,936.** high SCHOOL, FORT MILL, S. C. York Co. Bd. Trustees, Rock Hill, S. C. CD 5/24, under LB.

▲ **S. J. Curry & Co.**, Albany, Ga. Contract Awarded, **$1,556,607** HOUSING Units, CORDELE, GA. Cordele Housing Auth., Cordele, Ga. Bids June 12. CD 6/15, under LB.

Mangham-Butler, Inc., 824 McDonough Rd. S.E., Atlanta, Ga., Contract Awarded, **$906,250,** HOUSING Units, MARIETTA, GA. Marietta Housing Auth., Marietta, Ga. Bids June 14. CD 5/28.

Edward M. Fleming Constr. Co., 3304 N. Miami Ave., Miami, Fla. Contract Awarded. **$785,000,** 100 HOUSING units, DAYTONA BEACH, FLA. Daytona Beach Housing Auth., Daytona Beach, Fla. Bids June 12. CD 6/18, under LB.

Fidelity Constr. Co., 150 N.W. 73 St., Miami, Fla. Contract Awarded, Approx. **$300,000,** APARTMENT DEVELOPMENT, MIAMI BEACH, FLA. Sambet Corp., c/o contractor.

M. T. Reed Constr. Co., 162 Millsaps Ave., Jackson, Miss. Contract Awarded. **$893,333.** 122 DWELLING units, incl. admin. and maintenance bldg., Proj. LA 24-1 and LA 24-2, BOGALUSA, LA. Bogalusa Housing Auth., Bogalusa, La. Awarded June 13. CD 5/29.

Hudson Engineering Corp., 2711 Danville St., Houston, Tex. Contract Awarded. Approx. **$300,000.** gasoline PLANT to handle distilate, EGAN, LA. Acadia Corp., c/o contractor.

Legion Oaks Housing Corp., c/o Rene F. Gelpi, archt., 730 Gravier St., New Orleans, La. Owner Builds. **$600,000.** 91 HOMES, NEW ORLEANS, LA.

T. C. Bateson Co., Irwin-Keasler Bldg., Dallas, Tex., Contract Awarded, **$510,751.** 75 HOUSING UNITS, FAYETTEVILLE, TENN. Fayetteville Housing Auth., Fayetteville, Tenn. Bids June 14. CD 5/24.

▲ **James E. Green Co.**, Johnson City, Tenn., Contract Awarded, **$2,305,000,** HOUSING Units, JOHNSON CITY, TENN. Johnson City Housing Auth., Johnson City, Tenn. Bids June 12. CD 6/18, under LB.

Tri-State Constr. Co., Three Sisters Bldg., Memphis, Tenn. Contract Awarded. **$300,000.** remodeling steel, concrete BAKERY addn., MEMPHIS, TENN.

Harts Bakery Co., c/o Geo. Mahan Jr., archt., Medical Arts Bldg., Memphis, Tenn.

Masonry Co., Inc., c/o Faires & Sanford, archts., Falls Bldg., Memphis, Tenn. Owner Builds. $400,000. 50 HOMES, MEMPHIS, TENN.

▲**Shelby Constr. Co.**, Shrine Bldg., Memphis, Tenn. Contract Awarded. $3,986,777. 540 HOUSING units, for enlisted men, MILLINGTON, TENN. Dist. Pub. Wks. Office, Box 365, Naval Base, S. C. CD 5/29, under LB.

▲**J. A. Jones Constr. Co.**, 209 W. 4 St., Charlotte, N. C., Contract Awarded, $4,437,500, 500 unit public HOUSING, Carroll St., NASHVILLE, TENN. Nashville Housing Auth., 701 S. 6 St., Nashville, Tenn. Bids June 5. CD 6/14, under LB.

▲ **Foster & Creighton Constr. Co.**, First American National Bank Bldg., Nashville, Tenn. Contract Awarded. $3,877,000. tuberculosis HOSPITAL, NASHVILLE, TENN. State Bd. Health, State Office Bldg., Nashville, Tenn. Bids June 14.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 6 Illinois
STREETS AND ROADS
July 10 Wisconsin July 11 Illinois

BIDS ASKED—BUILDINGS

▲ **Mich., Kalamazoo** — SERVICE — B.A. 7/18 — State, A. N. Langius, dir. State Bldg. Dpt., Lansing, 2-story, rein.-con. service bldg., Kalamazoo State Hospital, $1,286,000. Plans deposit $25, Louis C. Kingscott & Assoc., Inc., 511 Monroe St., archts. CD 3/13.

▲ **Ill., Chicago**—HOMES—Bids Asked—Glendale Homes, Inc., 1940 N. Harlem Ct., Elmwood Park, 105 two story residences, $1,000,000. J. B. Ziegler, Jr., 3647 N. Kilpatrick St., Zone 41, archts.

Ind., Gary—PLANT—Bids Asked—Vulcan Detinning Co., Sewaren, N. J., metal reclaiming works plant, on 71 acres. $750,000.

O., Barnesville—HIGH SCHOOL, etc.—Bids Asked—Bd. Educ., Barnesville, 1½ story, 80x100 ft. brick, steel, concrete, high and grade school addn., alterations, field house and gymnasium. $391,000. Charles Marr, 138 Ray Ave. N.W., New Philadelphia, archt. CD 11/16/50.

CONTRACTS—HEAVY CONSTRUCTION

WISCONSIN—State Hy. Comn., Madison, Wis.,
John F. Bloomer Co., Bloomer Bldg., Appleton, Wis. Contract Awarded. $533,558, grading, draining 9.561 mi. Contract 1 South County Line-S.T.H. 21 Road Proj. F 03-2(21) Winnebago Co. Bids Apr. 24. CD 5/1, under LB.

CONTRACTS—BUILDINGS

▲ **McGough Bros.**, 1954 University Ave., St. Paul, Minn. Contract Awarded, $1,975,039, 1, 2 and 3 story, bsmnt., O'Shaughnessy LIBERAL and FINE ARTS BLDG., SOUTH BEND, IND. Notre Dame University, Campus, South Bend, Ind. Bids May 15. CU 4/19.

† **Millstone Constr., Inc.**, 4343 Clayton St. St. Louis, Mo. Contract Awarded. $950,000, 2 BARRACKS at Granite City Engineer Depot. GRANITE CITY, ILL. U. S. Eng., 520 Merchandise Mart, Chicago 54, Ill. Bids May 25. CD 5/15.

† **Alport-Carlo Constr. Co.**, Title Guarantee Bldg., St. Louis, Mo. Contract Awarded. Approx. $1,000,000 electronic MAINTENANCE BLDG. and base maintenance shop annex at Granite City Engineer Depot, GRANITE CITY, ILL. U. S. Eng., 50 Merchandise Mart, Chicago 54, Ill. CD 6/1. Bids June 12.

Glass Constr. Co., Belvidere, Ill. Contract Awarded. $525,000. FACTORY and OFFICE, HARVARD, ILL. Butcher Boy Cold Storage Door Co., 170 N. Sangamon St., Chicago, Ill. Andrew Kuby, 109 Benton St., Woodstock, Ill., archt. Awarded June 9. CD 5/29.

Bully & Andrews, 2040 W. Harrison St., Chicago 12, Ill. Contract Awarded, $800,000, 101,000 sq. ft. factory, Oakton and Lehigh Aves., MORTON GROVE, ILL. Dole Valve Co., 1923 W. Carroll St., Chicago 12, Ill. Awarded June 15. CD 5/14.

▲ **Mills & Sons**, 7610 W. Grand St., Chicago 35, Ill. Owner Builds, $1,755,000, 111 HOMES near Waukegan and Simpson Rds., MORTON GROVE, ILL. Awarded June 12. CD 12/19/50.

Dura-bilt Constr. Co., 5150 Dempster St., Skokie, Ill. Owner Builds. $700,000, 58 HOMES, Central Ave., Howard and Oakton St., SKOKIE, ILL. Emil J. Minx, 5150 Dempster St., Skokie, Ill., archt.

▲ **United Engineers & Constructors, Inc.**, 1401 Arch St., Phila., Pa. Contract Awarded. Total cost $35,000,000. St. Clair POWER PLANT, incl. three 125,000 kilowatt turbine generators and three high pressure boilers, St. Clair River about midway between ST. CLAIR and MARINE CITY, MICHIGAN. Detroit Edison Co., 2000 Second St., Detroit, Mich. CD 10/9.

▲ **Steinie & Wolf**, Freemont, O. Contract Awarded. $1,000,000. 100 family brick HOUSING units, Proj. Mich. 14-1, ALBION, MICH. City of Albion Housing Auth., R. J. Ray, Albion, Mich. Bids June 5. CD 5/17.

▲ **Bolyard Constr. Co.**, 4701 N. Woodward St., Royal Oak, Mich. Contract Awarded. $1,200,000. 40 ranch HOMES, Gilbert Lake Estate, Quarton and Gilbert Lake Rds., BLOOMFIELD HILLS, MICH. Max Broock, Inc., 300 S. Woodward St., Birmingham, Mich.

H. B. Culbertson Co., 2842 W. Grand Blvd., Detroit, Mich. Contract Awarded. $657,565. 2 story, bsmnt., brick, steel, concrete Pierce Elementary SCHOOL, Iowa and Dwyer Sts., DETROIT, MICH. City, Bd. Educ., Detroit, Mich. CD 12/18.

A. W. Kutsche & Co., 2924 W. Grand Blvd., Detroit, Mich. Contract Awarded. $589,991. brick, steel, stone Leslie Elementary SCHOOL, DETROIT, MICH. City, Bd. Educ., Detroit, Mich. Bids June 4. CD 5/17.

▲ **C. H. Reisdorf, Inc.**, 831 Fox Bldg., Detroit, Mich. Contract Awarded. $1,317,870. LIBRARY Addn. No. 2, Wayne University, DETROIT, MICH. City, Bd. Educ., 1354 Broadway, Detroit, Mich. Bids June 11. CD 5/25.

▲ **Theodore Degenhardt**, 18126 Brinker St., Detroit, Mich. Owner Builds. $1,200,000. 100 single brick HOMES, Conant Garden Sect., DETROIT, MICH.

Cleveland-Cliffs Iron Co., Ishpeming, Mich. Owner Builds. $950,000. 100 family HOUSING units, F.H.A. Proj. US-41, incl. grading, sewers, etc., ISHPEMING, MICH. Harold A. Starin, Duluth, Wis., engr.

▲ **Sorenson & Gross Co.**, Flint, Mich. Contract Awarded. $3,861,875, est. $3,500,000. fifty-six bldgs., 300 family HOUSING units, PONTIAC, MICH. City of Pontiac Housing Comn., Pontiac, Mich. Bids June 8. CD 5/17.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Kan., Wichita—HANGAR—B.A. 7/6—Boeing Airplane Co., Wichita Div., RFD 5, 82x195x847 ft. steel flight hangar, incl. shop, office, etc.; 190,000 sq. yd. 17 in. concrete flight hangar apron, approx. 9,900 lin. ft. 24- to 54-in. storm sewers. Wilson & Co., 223 N. Santa Fe, Salina, engrs. CD 5/23.

Minn., Fergus Falls—B.A. 7/9—Otter Tail Co., W. Lincoln, aud., grav. surf. 6.9 mi. between 8.75 mi. north of New York Mills and 3.5 mi. south and 2.25 mi. east of Hillview, SP 56-517-04 (SAR 1), Minn. Proj. S 245 (5); grav. surf. 5.8 mi. between Bluffton and 5.5 mi. north, one 36x60 ft. 32 in. timber box culvert, one 72x72 ft. 36 ft. timber box culvert, SP 56-519-01 (SAR 19), Minn. Proj. S 433 (1). Plans deposit $1.80 each. $70,000. W. P. Huber, co. hy. engr.

BIDS ASKED—BUILDINGS

▲ **Ia., Sioux City**—HOSPITAL—B.A. In July—Lutheran Hospital, 2714 Pierce St., 4 story hospital addn. with pent house roof. $1,345,700. Extended date. John Latenser & Sons, 1307 Farnam St., Omaha, Neb., archts. CD 6/13.

Neb., Bellevue—SCHOOL—B.A. 7/5—Bd. Educ., Bellevue, South Ward School. $325,000. Meginnis & Schaumberg, 614 Federal Security Bldg., Lincoln, archts. CD 4/4.

Tex., Texarkana—HOUSING—B.A. 7/10—U. S. Eng., Box 61, Tulsa 2, Okla., construct, manage, finance 55 housing units, Inv. Eng. 34-066-51-28, $468,000. CD 12/6/50.

▲ **Tex., Houston**—PLANT—Bids Asked—Houston Welding Co., 5611 Clinton Dr., plant. $1,000,000.

LOW BIDDERS—HEAVY CONSTRUCTION

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

Megarry Bros., St. Cloud, Minn., Low Bidder, $116,644, grading, concrete box culverts 4.5 mi. between 2 mi. northwest of Jct. T.H. 23 and 0.75 mi. southeast of North Sherburne Co. Line, Benton and Sherburne Counties.

McLean-Astleford Co. and Kimmes Constr. Co., Hastings, Minn., $558,742, grading, bridges 9.6 mi. between Hamel and 0.2 mi. west of Jct. T.H. 100, Hennepin Co.

Strom Constr. Co., Moorhead, Minn., $218,151, grading, concrete box culvert 12.2 mi. between 6.5 mi. south of Felton and North Clay County Line, Clay Co.

received no bids June 8, road-mixed or plant mixed bit. base and surf. 1.8 mi. between St. Vincent and Jct. T.H. 75, Kittson Co. Bids June 8. CD 5/23.

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

Bridge Builders, Inc., 921 Tower Ave., Superior, Wis. Low Bidder. $119,568. Bridge 6660, concrete deck girder spans, overhead M. & St. L. Ry., near Eden Prairie, Hennepin Co. Bids June 8. CD 5/23.

NORTH DAKOTA—State Hy. Dpt., Bismarck,
Archie Campbell, Warwick, N. D., Low Bidder, $105,418, tr. service, grav., incld. 8.484 mi. Proj. F 26 (2) and F 405 (2), Benson Co.

P. A. Bradbury Constr. Co., Aberdeen, N. D., $59,890, base, A. C. surf., incld. 1.928 mi., Proj. S 54 (3), Richland.

rejected bids June 8, grading, grav. surf. incld. 13.489 mi., Proj. ER S 57 (3) and S 351 (3), Pembina Co. CD 5/25.

J. F. Buckner & Sons, Box 609, Jacksonville, Tex. Low Bidder, $339,200, est. $375,000. clearing floodway and excavation channel of Trinity River within city limits, West Fork Area, Part 2 project, Inv. No. CIVENG 41-443-51-60, Tarrant Co., TEXAS. U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth, Tex. Bids June 14. CD 5/28.

▲† **J. W. Bateson Co.**, Irwin-Keasler Bldg., Dallas, Tex. Low Bidder. $2,647,032. Airmens quarters, mess and admin. bldg; **Texas Constr. Co.**, P. O. Box 138A, Dallas Tex., $465,232; bachelors officers quarters, academic bldg., cold storage and ordnance bldg., Air Force Base, BIG SPRING, TEX. U. S. Eng., 1127 T & P Bldg., Fort Worth, Tex. Bids June 12. CD 6/5.

† **H. E. Beall**, Gatesville, Tex. Low Bidder. $522,315. communications facilities, Gray Air Force Base, near KILLEEN, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 14. CD 5/16.

▲† **P. O. B. Montgomery**, 3121 N. Harwood St., Dallas, Tex. Low Bidder. $3,616,541. Dormitories, $516,000, mess halls; **Guthrie Electric Co.**, Box 559, Shreveport La., $82,000, revisions to existing electrical distr. sys., extens., Eng. 34-066-51-47, WICHITA FALLS, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids June 12. CD 5/29.

LOW BIDDERS—BUILDINGS

Steenberg Constr. Co., 1371 Marshall Ave., St. Paul, Minn. Low Bidder. $597,985. 2 and 3 story, 79x88 ft., and 95x102 ft., brick, L-shaped Midway Branch Y.M.C.A. BLDG., University and Wheeler Aves., ST. PAUL, MINN. St. Paul Young Men's Christian Assn., G. J. Caldwell, pres., 475 Cedar St., St. Paul, Minn. Bids June 5. CD 5/16.

E. E. Sarrow, Praetorian Bldg., Dallas, Low Bidder, $564,980, POWER PLANT, ANADARKO, OKLA. Western Electric Co-operative, Anadarko, Okla. Bids May 23. CD 5/16.

J. M. Odom, Box 774, Austin, Tex. Low Bidder. $798,739. Maplewood SCHOOL addn., incl. cafeteria and gymnasium, AUSTIN, TEX. Austin Independent School Dist., Austin, Tex. Bids June 14. CD 5/29.

Jas. B. Dent, Box 6275, Houston, Tex. Low Bidder, $858,683. 45 DWELLING units, Tex. 35-1, 40 DWELLING units, Tex 35-2, BAY CITY, TEX. Bay City Housing Auth., Bay City, Tex. Bids June 14. CD 5/29.

▲ **Hill & Combs**, 321 Melrose Pl., San Antonio, Tex. Low Bidder. $1,649,000. Twenty 200-man capacity barracks, Inv. Eng. 41-243-51-86; $574,125; two 500-man capacity mess halls; $627,325, two admin. bldgs., Eng. 41-243-51-86, KELLY AIR FORCE BASE, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 14. CD 5/31 and 6/8.

Blankenstein & Campbell, P. O. Box 22, Temple, Tex. Low Bidder. $509,700. Twelve 2 story DWELLING unit bldgs., 1 story mint bldg., Proj. Tex. 79-1, KILLEEN, TEX. Killeen Housing Auth., Killeen, Tex. CD 5/31.

† **Russ Mitchell Co., Inc.**, P. O. Box 8056, Houston, Tex. Low Bidder. $999,093. Aprons, runways, and taxiways at Connally Air Force Base, WACO, TEX. U. S. Eng., T & P Bldg., Fort Worth, Tex. Bids June 12.

▲† **U. S. Atomic Energy Comn.**, Los Alamos, N. M. Cancelled bids to have been opened June 20, medical research laboratory, TA 43, inv. 291-51-96, LOS ALAMOS, N. M. $1,500,000-$1,800,000. Project postponed indefinitely. CD 5/3.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Elliott Constr. Co.**, Redick Tower, Omaha, Neb., Contract Awarded, $505,559, installation work for sub-stations***Allis-Chalmers Mfg. Co., 1205 Olive St., St. Louis, Mo., $227,800, furnish circuit breakers***General Electric Co., 3824 Lindell St., St. Louis, Mo., $156,975, metering equip. and misc. equip.***Railway & Industrial Engineering Co., 12 S. 12 St., Phila., Pa. $334,700, sub-station structures and equip. Boone, Howard, Randolph, Monroe, Audrain and Callaway Counties, MISSOURI. Central Electric Power Co-operative, Jefferson City, Mo. Grand total $1,225,034. Bids June 4. CD 5/22.

Crawford Electric Co., North Platte, Neb. Contract Awarded. $695,423, 164.5 transmission lines, Minnehaha Co., SOUTH DAKOTA. East River Electric Power Co-operative, Sioux Falls, S. D. Bids May 24. CD 5/31, under LB.

▲† **Campsey Constr. Co., C. F. Lytle Co., and B. & C. Corstr. Co.**, 2520 Leyden St., Denver, Colo. Contract Awarded. $1,159,666. 109 mi. Rapid-City-Wall-Midland 115 kv transmission line, Missouri River Basin Proj., Transmission Div., Spec. DC 3387, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Awarded June 11. CD 5/31, under LB.

▲ **SOUTH DAKOTA**—State Hy. Comn., Pierre.
Western Contg. Corp., 400 Benson Bldg., Sioux City, Ia., Contract Awarded, $757,365, c. conc. 11.142 mi. SAP 299, Aurgra Co.

C. A. Wagner Constr. Co., 230 E. 8 St., Sioux Falls, S. D., $104,084, c. conc. 15.432 mi., FI 463, Aurora and Davison Counties.

P. A. Bradbury Constr. Co., Aberdeen, S. D., $85,397, bit. surf. 8.47 mi., FAP, Clark Co.

Myrl Clark, Tyndall, S. D., $65,011, bit. surf. 44.731 mi., FAP 239 A, B and C, Ziebach, Corson and Dewey Counties.

Summit Constr. Co., Rapid City, S. D., base course, seal 10.397 mi., FAP 212 and 304, Tripp Co. Grand total $1,238,204. Bids June 14. CD 6/4.

† **C. C. Teague & Son**, 208 Birge Bldg., Sherman, Tex., Contract Awarded. $230,723, est. $294,527, electric power distr. line, reconditioning, 7 new sub-station recondition fence lighting, AMARILLO, TEX. U. S. Atomic Energy Comn., Las Alamos, N. M. Bids June 5, awarded June 15. CD 5/16.

▲† **Steinberg & Son**, 2111 S. Harwood St., Dallas, Tex., Contract Awarded. $1,338,766, rehabilitation bldgs., facilities at Bryan Air Force Base, Inv. NO. Eng 41-243-51-73 near BRYAN, TEX., U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 8, awarded June 16. CD 6/14, under LB.

MONTANA—State Hy. Comn., Helena,
Peter Kiewit Sons Co., Sheridan, Wyo., Contract Awarded, $101,577, gray. surf., road-mix oil 7.72 mi., Winnett south road, Petroleum Co.; $63,030, grav. surf. 14.981 mi. Alzada-Ekalaka Rd., Carter Co.

R. J. Sundling Co., Livingston, Mont., grav. surf. road-mixed oil and drain 8.163 mi. Manhattan south road, Gallatin Co.

Naranche & Konda, 2019 Utah Ave., Butte, Mont., $150,999, grav., road-mixed build 38 ft. timber bridge 5 mi. Norris-Bozeman Rd., Madison Co.

Union Constr. Co., Great Falls, Mont., $65,010, grav. surf., road-mix oil 6.278 mi., Manicke-Kalispell Rd., Flathead Co. Grand total $483,560. Bids June 13.

▲† **J. E. Morgan & Sons,** Box 721, El Paso, Tex. Contract Awarded. $1,440,987. AFF bldg. for anti-aircraft firing facilities, Eng. 29-005-51-54, EL PASO, TEX. U. S. Eng., P. O. Box 1538, Albuquerque, N. M. Bids June 5. CD 5/25.

CONTRACTS—BUILDINGS

Fred O. Watson Co., 450 Baker Bdg., Minneapolis, Minn. Contract Awarded, $847,000, general constr. CLASS-ROOM BLDG. addn., Mankato Teachers College, MANKATO, MINN. State, Dpt. Admin., 120 State Capitol, St. Paul, Minn. CD 5/31, under LB.

▲ **C. T. Wilson Contg. Co.,** 99 E. Grand Ave., St. Louis 7, Mo. Contract Awarded. $1,056,000. one hundred and thirty-two 1 story, 24x36 ft. RESIDENCES, Cameron and Crawford Rds. and Renfrew and Galloway Drives, BADEN STATION (ST. LOUIS 15, P. O.) MO. M. H. Carpenter, Inc., 8025 Forsyth St., Clayton 24, Mo. Paul Klingensmith & Assoc., 4232 W. Pine Blvd., St. Louis 8, Mo., archts.

▲ **Jones Bros. Constr. Co.,** Joplin, Mo. Contract Awarded. $3,000,000. 100,000 sq. ft. PLANT to mfg. hydraulic equip., on 57 acre site, JOPLIN, MO. Vickers, Inc., 1400 Oakman Bldg., Detroit, Mich. Awarded June 10.

E. A. Brunson Constr. Co., 4052 Forest Park Ave., St. Louis 8, Mo. Contract Awarded. $524,408. 1 story, part bsmnt., brick, concrete, steel, 301,500 cu. ft. county HOSPITAL, TROY, MO. Lincoln County Memorial Hospital, Bd. Trustees, H. H. Garrett, chn., Troy, Mo. CD 6/8, under LB.

Wooten Constr. Co., 115 N. Spring St., Little Rock, Ark. Contract Awarded. $518,130. 80-unit HOUSING, CAMDEN, ARK. Camden Housing Auth., Camden, Ark. Bids June 8. CD 6/1.

▲ **Michaelson Constr. Co.,** Salina, Kan. Owner Builds. $2,000,000. DWELLINGS on 60 acre proj., ARKANSAS CITY, KAN.

▲ **M. W. Kellogg Co.,** 225 Broadway, New York 7, N. Y. Contract Awarded. $1,000,000. sulfuric acid alkylation PLANT, EL PASO, TEX. Standard Oil Co. of Texas, El Paso, Tex. CD 6/11.

▲† **Farnsworth & Chambers Constr. Co.,** Box 74, Houston, Tex. Contract Awarded. $1,282,900. 1,356,000 sq. ft. masonry veterans admin. HOSPITAL, NP Bldg. 26, Proj. 42-509E, HOUSTON, TEX. Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C. CD 6/4, under LB.

▲ **Centex Constr. Co., Inc.,** 4911 Greenville Ave., Dallas, Tex. Contract Awarded. approx. $4,685,000. construct, manage and finance one hundred and fifty, 1 and 2 story buildings, containing 600 HOUSING units, for Randolph Air Force Base, RANDOLPH FIELD, TEX. Murchison Brothers (sponsors), 1315 Pacific St., Dallas, Tex. CD 4/12, under LB.

Kirchhof Constr. Co., 700 Lawrence St., Denver, Colo. Contract Awarded. $736,162. General constr., 4 story, 50,000 sq. ft. PETROLEUM BLDG. for Colorado School of Mines, GOLDEN, COLO. Colorado State School of Mines, Golden, Colo. Awarded June 11. CD 6/13, under LB.

Burran & McCullough, Clovis, N. M. Contract Awarded. $573,168. Low cost HOUSING, CLOVIS, N. M. Housing Auth. of Clovis, Clovis, N. M. Bids June 12, awarded June 13. CD 5/31.

† **R. E. McKee,** 1918 Texas St., El Paso, Tex. Contract Awarded. $669,500. 2 barracks, 2 story, bsmnt., Z-shaped bldgs., concrete frame, masonry panel, utilities, relocate 3 wood frame mobilization bldgs., LAS CRUCES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids June 4, awarded June 12.

† **R. E. McKee,** Box 562, El Paso, Tex., Contract Awarded. $669,500, 360 EM BARRACKS at White Sands Proving Grounds, LAS CRUCES, N. M., U. S. Eng., Box 1538, Albuquerque, N. M. Bids June 4. CD 11/30/50.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

July 11, California

STREETS AND ROADS

July 11, 12, California

LOW BIDDERS—HEAVY CONSTRUCTION

† **C. J. Montag Co.,** 1518 N.E. 78 Ave., Portland, Ore. Low Bidder, $771,380, est. $961,702. 68x577 ft., steel frame alert hangar with aprons and utilities at Larson Air Force Base, Inv. No. 151-12, MOSES LAKE, WASH. U. S. Eng., Bldg. 602 City-County Airport, Walla Walla, Wash. Bids June 18. CD 6/6.

▲† **Morgan Smith Co.,** York, Pa. Low Bidder. $8,225,-257 six 111,300 hp. hydraulic turbines for McNary Dam. Units 9 to 14, Inv. No. CIVENG 45-164-51-56, OREGON. U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids June 15. CD 5/29.

† **American Pipe & Constr. Co.,** 616 N. Doheny Dr., Los Angeles, Calif. Low Bidder, $860,941, est. $611,-779 earthwork, pipe lines, structures, incl. reservoirs and pumping plants, for laterals 74.6E and 77.3E and sub-laterals, Unit 1, Exeter Irrigation, Dist., Central Valley Proj., Spec. DC-3415, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lindsay, Calif. Bids June 12. CD 5/16.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Chas. L. Harney, Inc., 575 Berry St., San Francisco, Calif., Low Bidder, $3,044,734, portion of bridge and misc. roadwork on Bayshore Freeway between 18 and Bryant Sts., San Francisco, Co. 6/14, under LB.

† **Oppenheim & King Constr. Co., Inc.,** P. O. Box 1902, Fresno, Calif. Low Bidder, $934,729, airfield facilities, Eng. 04-203-51-1045; $167,252, navigation aids ENG 04-203-51-1046, both at CASTLE AIR FORCE BASE, CALIF. Bids June 11.

▲† **Al-Co Co.,** 5423 Fishish Village Lane, Los Angeles, Calif. Low Bidder, $2,428,358, enlisted mens barracks and missile project bldg., POINT MUGU, CALIF. U. S. Naval Air Missile Test Center, Point Mugu, Calif. Bids June 12. CD 5/28.

† **Ben C. Gerwick, Inc.,** 112 Market St., San Francisco, Calif. Low Bidder, $621,908, rehabilitation barricaded sidings at U. S. Naval Magazine, Spec. 29649, PORT CHICAGO, CALIF., 12th Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 14. CD 6/4.

LOW BIDDERS—BUILDINGS

▲ **H. Halvorson, Inc.,** Ziegler Bldg., Spokane, Wash. Low Bidder, $2,044,500. 6 and 7 story HOSPITAL addns., SPOKANE, WASH. Deaconess Hospital, 733 4 St., Spokane, Wash. Bids June 15. CD 5/23.

Leo S. Wynans, 3585 N. E. Shaver St., Portland, Ore., Low Bidder, $509,684, 50-bed HOSPITAL, LEBANON, ORE. Lebanon Community Hospital, Lebanon, Ore. Bids June 12. CD 5/21.

Trewhitt—Shields & Fisher, 926 Parallel Ave., Fresno, Calif. Low Bidder, $621,500. Junior High SCHOOL COALINGA, CALIF. Coalinga Union High School Dist., Coalinga, Calif. Bids June 11. CD 5/24.

▲ **Bd. Supervs., Los Angeles Co.,** 501 Hall of Records, Los Angeles, Calif., rejected bids June 12, new JUVENILE HALL, LOS ANGELES, CALIF. L.B. $3,-350,000. Plans revised. CD 6/14, under LB.

Pipe Line Constr. Co., Heers Bros., Harold W. Heers, 6639 Magnolia Ave., Riverside, Calif. Low Bidders, $564,167, 75 rein.-con. block public HOUSING, REDLANDS, CALIF. Housing Auth. of San Bernardino County, 400 Crestview San Bernardino, Calif. Bids June 15. CD 6/12.

▲ **H. W. Robertson, Inc.,** 2917 T St., Sacramento, Calif. Low Bidder. $1,242,754. 127 APARTMENT UNITS and ADMINISTRATION bldg., Marconi and Wright Sts., SACRAMENTO, CALIF. Busby & Tedinneck, 1014 21 St., Sacramento, Calif. Bids June 12.

▲ **W. E. Robertson Co.,** 1415 W. Jefferson Blvd., Los Angeles, Calif. Low Bidder, $2,839,333, 400 unit HOUSING, South Stockton, STOCKTON, CALIF. San Joaquin Co. Housing Auth., Community Bldg., Stockton, Calif. Bids June 11. CD 5/17.

The Pacific Co., 158 Santa Clara Ave., Oakland, Calif., Low Bidder, $784,000, High SCHOOL at new site, VACAVILLE, CALIF. Vacaville Union High School Dist., Vacaville, Calif. Bids June 13. CD 5/25.

John Dresch, 211 N. Olive St., Ventura, Calif. Low Bidder, $776,378, 28 one story, frame low-rent HOUSING bldgs., VENTURA, CALIF. Housing Auth. of City of Buenaventura, 474 E. Main St., Ventura, Calif. Bids June 14. CD 5/25.

CONTRACTS—HEAVY CONSTRUCTION

† **J. K. Thayne Constr. Co.,** 2670 Berkeley Circle, Salt Lake City, Utah. Contract Awarded, $753,059, est. $991,865. rehabilitate railroad trackage at Deseret Chemical Warfare Depot, TOOELE, UTAH. U. S. Eng., 74 New Montgomery St., San Francisco, Calif. Bids May 24. CD 6/7, under LB.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, Calif.

Webb & White, 7220½ Melrose Ave., Los Angeles, Calif. Contract Awarded. $669,922, grading, paving 0.6 mi. Harbor Freeway between 4 St. and Temple St., Los Angeles Co. Bids May 24. CD 6/1, under LB.

† **Guy F. Atkinson Co.,** 223 St. and Santa Fe Ave., Long Beach, Calif. Contract Awarded. $971,400, breakwater, pier, etc., Spec. 30139, POINT MUGU, CALIF. U. S. Naval Air Missile Test Center, Point Mugu, Calif. Bids 29, awarded June 15. CD 6/6, under LB.

▲ **Clinton Constr. Co. of California,** 923 Folsom St., San Francisco, Calif. Contract Awarded, $6,754,000, terminal at San Francisco Airport, Contr. 130, SAN FRANCISCO, CALIF. City and San Francisco Co., City Hall, San Francisco, Calif. Bids May 29, awarded June 12. CD 6/7, under LB.

CONTRACTS—BUILDINGS

▲ **Morrison-Knudsen Co., Inc.,** 319 Broadway, Boise, Idaho. Contract Awarded, Approx. $1,400,000, 391x 988 ft. rein.-con. food WAREHOUSE, SEATTLE, WASH. Associated Grocers Co-operative, 1916 Occidental St., Seattle, Wash. S. H. Sandvos, Enatai, Seattle, Wash., engr.

▲ **Steed Bros.,** Box 350, Alhambra, Calif., Contract Awarded. $1,769,400, Muir Junior High SCHOOL, BURBANK, CALIF. Burbank Unified School Dist., 245 E. Magnolia St. Burbank, Calif. Bids May 15, awarded June 14. CD 5/22, under LB.

Maino Constr. Co., 2238 S. Broad St., San Luis Obispo, Calif. Contract Awarded, $597,900, general constr. DORMITORIES, Polytechnic College, SAN LUIS OBISPO; CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids June 5, awarded June 8. CD 6/12, under LB.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska, Fort Richardson**—AMMUNITION LOADING DOCK, etc.—B.A. 7/11—U. S. Eng., Anchorage, Alaska, ammunition loading dock and underground magazines, S 95-507-51-61.

BIDS ASKED—BUILDINGS

† **Alaska, Homer**—SCHOOL—B.A. 7/11—Officer of Territories Alaska P. Wks., Dpt. Interior, Juneau, rein.-con., masonry school addn. $191,600. Plans deposit $10. Manley & Mayer, Anchorage, archts.

BIDS ASKED—BUILDINGS

† **Alaska, Fort Richardson**—ADMINISTRATION—B.A. 7/12—U. S. Eng., New Washington Hotel, Seattle, Wash., composite administration bldg. Inv. No. S95-507-51-106. Plans deposit $50. CD 3/14.

LOW BIDDERS—BUILDINGS

L. E. Baldwin, Inc., 1103 N. 36 St., Seattle, Wash. Low Bidder. $819,000. 50 HOUSING units in 2 story frame buildings, DOUGLAS, ALASKA. Alaska Housing Auth., Anchorage, Alaska. Bids June 12. CD 5/18.

▲† **Haddock Engineers, Ltd. and Waytt & Kipper,** Securities Bldg., Seattle, 1, Wash. Low Bidder. $5,827,-000, est. $3,708,036, permanent heating and power PLANT, incl. moving equipment from Dutch Harbor, S 95-507-51-94, WHITTIER, ALASKA. U. S. Eng., New Washington Hotel, Seattle, 1, Wash. Bids June 14. CD 5/18.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Alta., Edmonton—GENERATING UNITS—B.A. 7/3—D. W. Laird, engr. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man., design, fabrication, installation 2 steam generating units at Namao Park. Approx. $90,000. Plans deposit $50.

Ont., Ottawa—GENERATING UNITS—B.A. 7/4—S. M. Connolly, engr. Defence Constr. Ltd., 441 Queens' Quay W., Toronto 2B, bit. coal burning steam generating units (4), at Uplands Airport, Job 1330, Approx. $175,000. Plans deposit $50.

BIDS ASKED—BUILDINGS

Ont., Petawawa—MESS—B.A. 7/4—S. M. Connolly, engr. Defence Constr. Ltd., 441 Queen's Quay W., Toronto, Ont. 500-man Mess No. 2 at Army Camp, Approx. $700,000. Plans deposit $50.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Curran & Briggs Ltd.,** 61 Haverson Blvd., Toronto, Ont., Low Bidder, $1,291,620, Contr. 4A, 2,776 ft. sewer 8x8½ ft., Mountain Trunk Sewer on Fennel Ave., subsidiary sewers, Contr. 4B, 2,879 ft. 7x7½ ft. sewer on Fennel Ave., HAMILTON, ONT. City, City Hall, Hamilton, Ont. Bids June 7. CD 5/25.

LOW BIDDERS—BUILDINGS

▲ **Dawson & Hall Ltd.,** 775 Clark Dr., Vancouver, B. C. Low Bidder. $1,262,375. 3 story, bsmnt., 121-bed rein.-con. HOSPITAL with surgical, maternity, X-ray and other depts., PENTICTON, B. C. Penticton Hospital Bd., Penticton, B. C. Bids May 31. CD 5/9.

▲ **Commonwealth Constr. Co.,** Royal Bank Bldg., Winnipeg, Man. Low Bidder, $1,797,229, 1 story, 230x690 ft., WAREHOUSE, 3 story, 155x230 ft., office, and 47 ft. garage steel frame, brick, WINNIPEG, MAN. Manitoba Telephone System, 166 Portage Ave. E., Winnipeg, Man. Bids June 6. CD 5/21.

Cecil Carpenter & Co. Ltd., 5139 Decarie Blvd., Montreal, Que. Low Bidder. Appro. $500,000. Clarendon SCHOOL, SHAWVILLE, QUE. Clarendon School Comn., W. M. Hayes, secy., Shawville, Que. Bids May 30. CD 5/9.

CONTRACTS—HEAVY CONSTRUCTION

▲ **ALBERTA**—Alberta Dpt. Hys. Parliament Bldg., Edmonton,

W. C. Wells Constr. Co. Ltd., 10571 115 St., Edmonton, Alta. Contract Awarded. $1,058,427, asph. surf. 46 mi. Hy. 16 between Carrott Creek to Galloway, Edmonton. Awarded June 16. CD 12/3/43.

▲ **Curran & Briggs Ltd.,** 61 Haverson Bldg., Hamilton, Ont. Contract Awarded. $1,291,620, 2,776 ft. sewers 8x8½ ft., Mountain Trunk Sewer on Fennel Ave., subsidiary sewers, 2,879 ft. 7x7½ ft., sewer Fennel Ave., HAMILTON, ONT. City, City Hall, Hamilton, Ont. Bids June 7. CD 6/20, under LB.

SASKATCHEWAN—Dpt. Hys. & Transportation, Regina,

Acorn Constr. Co., Fenton, Sask. Contract Awarded. Approx. $148,000; sub grade on Trans-Canada Hy. from Broadview to Oakshala about 913 mi.

Beattie Ramsay Constr. Ltd., Victoria and McDonald Sts., Regina, Sask. Approx. $715,000, grav. base course and bit. Sect. No. 1. Trans Canada Hy. from Sintaluta to McLean, about 28.2 mi. CD 10/1/43.

CONTRACTS—BUILDINGS

Canada Constr. Co. Ltd., 131 de Forest Rd., Toronto, Ont., Contract Awarded, Approx. $600,000, 1 story, 147x587 ft., concrete block, steel paper box FACTORY addn., TORONTO, ONT. Gair Co. of Canada Ltd., 372 Bay St., Toronto, Ont. Bids May 28, awarded June 13. CD 5/23.

CONSTRUCTION REPORTS

Third Section

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Pa., Phila.**—SUBWAY—B.A. 7/10—Dpt. City Transit City Hall Annex, competition Locust St. Subway, $1,984,979, Howard S. Hipwell, c/o owner, ch. engr. CD 11/9/44.

LOW BIDDERS AND CONTRACTS—BUILDINGS

▲† **Victor L. Beauchamp, Inc.,** 6837 Fourth St., N. W. Wash., D. C., Low Bidder, $2,043,800, 160-unit DWELLINGS for low-income families called the Richardson Dwelling Proj., at 33 and Clay St., N. E. Wash., D. C. National Capitol Housing Auth., 1737 L. St. N. W., WASHINGTON, D. C. Bids June 21. CD 6/13.

SOUTH

LOW BIDDERS AND CONTRACTS—HEAVY CONSTRUCTION

▲ **MISSISSIPPI**—State Hy. Dpt., Jackson, **Merritt-Chapman & Scott Corp.,** 17 Battery Pl., New York, N. Y. Contract Awarded. $6,061,434, est. $7,000,000. 10,198 ft. bascule span concrete bridge across Bay of St. Louis on U.S. Hy. 90 between Bay St. Louis and Henderson Point, Toll Proj. No. I, Contr. 1, Hancock and Harrison Counties. CD 6/11, under LB.

LOW BIDDERS AND CONTRACTS—BUILDINGS

▲ **Paul Smith Constr. Co.,** 310 N. Rome Ave., Tampa, Fla. Contract Awarded. $2,977,000. Robles Park Village HOUSING, incl. 436 units, TAMPA, FLA. Tampa Housing Auth., 5118 Morgan St., Tampa, Fla. Bids June 14. CD 6/21, under LB.

▲ **Grove, Shepherd, Wilson & Kruge, Inc.,** 247 Park Ave., New York, N. Y., and Nile E. Yearwood, 1709 Hayes St., Nashville, Tenn. Contract Awarded. $2,205,140. HOSPITAL, CLARKSVILLE, TENN. Montgomery Co., Clarksville, Tenn. Bids June 7. CD 6/15, under LB.

MIDDLE WEST

▲ **Crane Constr. Co.,** 505 N. Michigan St., Chicago, 11, Ill., Contract Awarded, $2,750,000, 21 story, 286-unit rein.-con. frame, brick APARTMENT, CHICAGO, ILL. John J. Mack, c/o Shaw, Metz & Dolio, archts. 208 S. La Salle St., Chicago, 4, Ill. Awarded June 12. CD 2/21.

WEST OF MISSISSIPPI

LOW BIDDERS AND CONTRACTS—HEAVY CONSTRUCTION

▲ **TEXAS**—State Hy. Comn., Austin, **Austin Bridge Co. and Austin Road Co.,** P. O. Box 1590, Dallas, Tex. $1,263,049. grading, structures, storm sewers, c. conc. 1.136 mi. Hy. U. S. 75, Proj. U-515 (11), Dallas Co.

South Texas Constr. Co., P. O. Box 3152, Corpus Christi, Tex. $506,708. wid'n., structures, reconstr. and wid'n. base and pavement 15.337 mi., Hy. U. S. 77, Proj. F 913 (10), Kennedy Co. Awarded June 5. CD 5/22, under LB.

▲ **TEXAS**—State Hy. Comn., Austin, **Worth Constr. Co.,** P. O. Box 531, Fort Worth, Tex. Contract Awarded. $1,025,636. roadbed tr., flexible base shoulders, and c. conc. 11.633 mi. Hy. U. S. 1, Proj. FI 113 (15) and 139 (9), Hill and McLennan Counties.

Ernest Loyd, P. O. Box 1120, Fort Worth, Tex. $535,526. grading, structures 15.633 mi., SH 155, Proj. 1090 (3) Upshur Co. Awarded June 13. CD 5/23, under LB.

LOW BIDDERS AND CONTRACTS—BUILDINGS

▲ **Yarbrough Constr. Co.,** 410 Navasota St., Austin, Tex. Low Bidder. $2,154,129, alternate $2,277,799. 300 brick veneer HOUSING units in 52 bldgs., Rosewood Housing, Proj. Tex. 1-5, AUSTIN, TEX. Austin Housing Auth., 302 Chalmers St., Austin, Tex. Bids June 19. CD 5/31.

▲ **City of San Antonio Housing Auth.,** 419 S. St. Marys St., San Antonio, Tex. cancelled bids to have been opened June 20, 500 dwelling units for total of 74 bldgs., Tex. 6-10, SAN ANTONIO, TEX. Est. $3,750,000. CD 6/5.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Manitoba**—RAILWAY—B.A. 7/20—Canadian National Railways, 360 McGill St., B. Wheelwright, ch. engr., Montreal, Que., first 56 mi. railway from Sherridon to Lynn Lake, 155 mi., mining development. Plans deposit $100. G. F. Drummond, c/o owner, ch. archt. R. O. Stewart, c/o owner, bridge engr. CD 6/4.

OFFICIAL PROPOSALS

RATE: THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.25 PER LINE (OR FRACTION) PER INSERTION

COPY RECEIVED UP TO 10:00 A. M. THURSDAY FOR ISSUE OUT NEXT THURSDAY SUBJECT TO SPACE OPEN FOR LAST MINUTE ADS

SEND COPY TO OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

Bids: July 6, 1951

Additional Paving of Taxiway TA

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-170.038

Sealed proposals for additional paving of Taxiway TA at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Friday, July 6, 1951 at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, June 28, 1951

Bids: July 2, 1951

Furnishing and Delivering Truck Mounted Refuse Collectors

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 1008

Sealed proposals for furnishing and delivering four (4) complete truck mounted refuse collectors will be received in the office of the Purchasing Agent, Room 3, of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland until 10:30 A. M. Eastern Daylight Saving Time, on Monday, July 2nd, 1951 at which time and place they will be publicly opened and read.

Specifications may be obtained from W. R. Douglas, Purchasing Agent of the Commission, Hyattsville, Maryland.

Raymond W. Bellamy, Chairman
L. S. Ray
J. Norman Ager
Commissioners

James B. Parkhill
Secretary-Treasurer

Make Plans Accessible to Distant Bidders

Plans and specifications for inspection by distant bidders may be filed at any of ENGINEERING NEWS-RECORD offices without charge. Or a sufficient supply may be deposited at such of our offices as seem desirable subject to your usual requirements in the matter of deposits, etc. (We assume full responsibility for return of plans or collection and return of deposits).

Bids: July 16, 1951

Foundations

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
BUILDING NO. 139

CONTRACT PN-150.001

Sealed proposals for the construction of foundations for Building No. 139 at Port Newark will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M., Monday, July 16, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, June 28, 1951

Bids: July 18, 1951

Reconstruction of Access Roads to Terminal Area

THE PORT OF NEW YORK AUTHORITY
New York International Airport

CONTRACT NYA-160.003

Sealed proposals for the reconstruction of access roads to the Terminal Area at New York International Airport will be received at the Office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Wednesday, July 18, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, June 28, 1951

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3467) will be received by Bureau of Reclamation, Davis Dam, Arizona, until July 18, 1951, and then publicly opened for furnishing labor and materials and performing all work for the completion of a 79-foot by 46-foot reinforced-concrete utility building and parking area, Davis Dam Project, Arizona-Nevada. The work is situated along the Colorado River and approximately 30 miles west of Kingman, Arizona. Principal items are approximately: 1,750 cu. yds., gravel surfacing; 1,150 lin. ft., furnishing and erecting beam-type guardrails; 16,500 lbs., furnishing and placing reinforcement bars; 540 cu. yds., concrete; 3,000 sq. ft., terrazzo floors; 13,400 lbs., installing metalwork; 2,940 lin. ft., furnishing and installing electrical conduit; 23,700 lin. ft., furnishing and installing electrical conductor; and other work. Time allowed for completion will be 150 days. For particulars, address Bureau of Reclamation, Davis Dam, Arizona; or Building 1-A, Denver Federal Center, Denver, Colorado.

(Continued on page 82)

OFFICIAL PROPOSALS
(Continued from page 81)

Bids July 16, 1951

Revised Bid Date

Senior High School

FOR BOARD OF EDUCATION
SYRACUSE, N. Y.

Sealed Proposals Will be Received at the office of the Commissioner of Contract and Purchase of the City of Syracuse, New York, 218 City Hall, Spracuse, New York, on July 16, 1951, until 1:30 p.m., Eastern Daylight Saving Time. On the same day and immediately thereafter, the sealed Proposals will be opened and publicly read by the Commissioner of Contract and Purchase, of the City of Syracuse, New York, 218 City Hall, Syracuse, New York.

The sealed Proposals are to be for:

Contract No. 1—General Construction
Contract No. 2.—Electric
Contract No. 3—Plumbing
Contract No. 4—Heating
Contract No. 5—Sound System
Contract No. 7—Ventilation
For the William Nottingham High School (previously called East Side High School), located in the 3000-3100 block of East Genesee Street in the City of Syracuse, New York.

A certified check for $100.00 dollars or currency for each set of plans and specifications will be required by the Commissioner of Contract and Purchase from prospective bidders. The certified check or cash will be held by the Commissioner of Contract and Purchase, and, upon the return of the drawings and specifications, will be returned to the bidder.

Structural steel for the building has been let previously and is designated as Contract #6.

Bids: July 17, 1951

Well Pumping Stations

Sealed bids will be received until 9:00 A.M. EST July 17 A. D., 1951., in the office of City Auditor & Clerk for: Well Pumping Stations, Wells, Pumps & Appurtenances.

Bidding blanks may be obtained from the office of the Engineers. Plans and specifications are on file in the office of the Engineer.

A deposit of $25.00 for plans and specifications and of $15.00 each for additional copies of plans or specifications will be required. All deposits for plans and specifications will be refunded upon their return in good condition witain ten (10) days of the opening of bids.

A certified check for 5% of the total amount of the bid, made payable to City of Fort Lauderdale, Florida shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The Owner reserves the right to reject any or all bids.

R. K. Lowry
City Manager

Bids: July 11, 1951

Storage Tank

COUNTY OF ORANGE—STATE OF NEW YORK
ORANGE FARM, N. Y.

Sealed bids or proposals will be received by the County of Orange at the office of the Clerk of the Board of Supervisors in the County Building at Goshen, N. Y. until 11:00 A.M. July 11, 1951 (D.S.T.) for furnishing and erecting a 150,000 gallon steel water storage tank at the County Welfare Home at Orange Farm near Florida, New York.

Proposals will be publicly opened and read aloud at 11:00 A.M. (D.S.T.) on July 11, 1951.

Proposals shall be made upon the stationery of the bidder and in accordance with the information for bidders and the specifications, copies of which may be secured at the office of the Clerk of the Board of Supervisors or at the office of Harry C. Carpenter, Consulting Engineer, 218 Wisner Avenue, Middletown, N. Y.

A certified check or bid bond for five percent (5%) of the total cost of the work, payable to the Treasurer of Orange County, N. Y. must accompany each bid.

The County of Orange reserves the right to reject any or all bids or to waive any informalities in the bidding. No bid shall be withdrawn for a period of ten days subsequent to the opening of bids without the consent of the Buildings and Insurance Committee of the Orange County Board of Supervisors.

By Orders of the Board of Supervisors
Buildings and Insurance Committee
LESTER J. ROOSA, Clerk

Dated Goshen, N. Y. June 20, 1951.

Bids: July 17, 1951

Raw Water Mains

Sealed bids will be received until 9:00 A.M. EST July 17 A. D., 1951, in the office of City Auditor & Clerk for: Raw Water Mains & Secondary Distribution.

Bidding blanks may be obtained from the office of the Engineer. Plans and specifications are on file in the office of the Engineer.

A deposit of $25.00 for plans and specifications, and of $15.00 for each additional copies of plans and specifications, will be required. All deposits for plans and specifications will be refunded upon their return in good condition within ten (10) days of the opening of bids.

A certified check for 5% of the total amount of the bid made payable to: City of Fort Lauderdale, Florida shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The Owner reserves the right to reject any or all bids.

Bidders may bid on both Sections I and II or on Section I and II separately.

R. K. Lowry
City Manager

Bids: July 19, 1951

Contract No. 17—Front Range Light Structure

THE DELAWARE MEMORIAL BRIDGE
NOTICE TO BIDDERS

Sealed proposals for the construction of the Front Range Light Structure in the Delaware River adjacent to "The Delaware Memorial Bridge" near Wilmington, Delaware, will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Continental American Building, Wilmington, Delaware, until 12 o'clock noon Eastern Daylight Saving Time (11:00 A.M., Eastern Standard Time), July 19, 1951 at which time and place said proposals will be publicly opened and read.

The work involves the following approximate principal quantities:

2,560 lin. ft. Steel Piles (227,840 lbs.)
180 cu. yds. Concrete
One Structural Steel Tower (3,200 lbs.)

Performance of this contract shall begin promptly after execution of the contract and shall be completed on or before December 1, 1951.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms furnished by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check for a sum equal to at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the Plans and two copies of the Specifications may be obtained from the Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., after June 20, 1951, upon payment of $10.00.

Any prospective bidder who has made such a deposit may secure extra blueprint copies of the Plans upon payment of 50 cents per drawing and an extra copy of the Specifications upon payment of $2.50 per copy.

Plans and Specifications need not be returned to the Engineers, and the above payments will not be refunded.

The Plans and Specifications and other contract documents may be examined at the office of the Director, Delaware Crossing Division, Continental American Life Insurance Building, Wilmington, Delaware, or at the office of the Engineers, Howard, Needles, Tammen & Bergendoff.

State Highway Department
J. Gordon Smith, Chairman

W. A. McWilliams, Director
Delaware Crossing Division
Wilmington, Delaware
June 18, 1951

U. S. Government

Bids: July 24, 1951:

NOTICE TO CONTRACTORS
UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF TERRITORIES
WASHINGTON, D. C.

Sealed proposals will be received by the District Engineer for the Virgin Islands, Department of the Interior, Post Office Box No. 479, St. Thomas, V. I., until 2:00 P.M., Atlantic Standard Time on July 24, 1951, for the construction of the following hospitals:

Project No. 53-115—Construction of a 4-bed Public Health Facility at St. John, V. I.

Project No. 53-501(2)—Construction of a 12-bed General Hospital at Frederiksted, St. Croix, V. I.

Project No. 53-501(1)—Construction of a 60-bed General Hospital at Christiansted, St. Croix, V. I.

Project No. 53-101—Construction of a 116-bed General Hospital at Charlotte Amalie, St. Thomas, V. I.

At the above time and place the proposals will be publicly opened and read aloud. Bids received after closing time of bid opening will be returned unopened.

The right is reserved, as the interest of the Government may require, to reject any and all bids; to waive any informality in bids received; and to accept or reject any or all items of any bid, unless the bidder qualifies such bid by specific limitation. In the event all bids are rejected, the Government may therefore adopt any of the authorized procedures such as readvertisement, negotiation with rejected bidders and others, or postponement of the project. The government also reserves the right to award contracts for the various items on the basis of the basic bid or by the adoption of any or all the "Deductible Alternates", whichever is in the best interests of the United States.

Plans and specifications and other proposed contract documents are open for public inspection at the Office of the District Engineer for the Virgin Islands, Thomas G. Mooney, Charlotte Amalie, St. Thomas, U. S. Virgin Islands; M. A. Dyer Company, 24 School Street, Boston, Massachusetts; Lester M. Marx, Special Assistant to the Director, Room 2713 Interior Building, Washington 25, D. C.; U. S. Department of Commerce No. 2, Puerto Rican Reconstruction Administration Ground, Building 5, San Juan, Puerto Rico; AGC Office, 1115 Congress Building, Miami 32, Florida; Builders' Exchange, 46 NE 6th Street, Miami, Florida; and F. W. Dodge Corporation, 119 West 40th Street, New York City, N. Y. A set of such documents may be procured from any of the first three above-listed offices upon deposit of $50.00, by certified check payable to the United States of America, all of which will be returned to bonafide bidders upon the return of plans and specifications in good condition within seven days of date of bid opening.

Each proposal must be accompanied by a bid security in an amount not less than 5 percent of the total bid.

Subject to available appropriation, awards will be made on one, any, or all buildings, with or without the deductible alternates specified in the contract documents.

The successful bidders will be required to furnish performance bonds in an amount equal to 100 percent of their bids and payment bonds in an amount equal to 100 percent of their bids; such bonds to cover full performance of the contracts and payments for labor and materials.

No proposal may be withdrawn after the scheduled closing time for receipt of bids for at least 45 days.

LESTER M. MARX
Contracting Officer
Office of Territories

(Continued on page 83)

READ THE OFFICIAL PROPOSAL COLUMNS OF ENGINEERING NEWS-RECORD THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS
(Continued from page 82)

Bids: August 6, 1951

Sewage Treatment Plant

EWING-LAWRENCE SEWERAGE AUTHORITY

Sealed bids will be received by the Ewing-Lawrence Sewerage Authority (mailing address, 156 West State Street, Trenton 8, New Jersey) until two o'clock P.M., Eastern Daylight Saving Time on the sixth day of August, 1951 at the Lawrence Township Hall on the Trenton-Princeton Road near West Church Road, for constructing a 3,800,000 gallons per day sewage treatment plant, in accordance with the plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be obtained either from the Authority or from the Consulting Engineers upon deposit of Fifty Dollars, which sum will be refunded upon return of the plans and specifications in good condition within 20 days after the date on which bids are received.

The work to be performed is divided into four sections. The principal items of work are:

SECTION A—BUILDINGS AND STRUCTURES for a complete sewage treatment plant of 3.8 million gallons daily capacity, including a main building and pumping station, garage and pumping station, two primary clarifiers, two trickling filters, two secondary clarifiers, two sand filters, two sludge digestion tanks, sludge control building and heater building, four glass-covered sludge drying beds, chlorine contact chamber and outfall sewer, complete with all equipment, piping and appurtenances.

SECTION B—ELECTRICAL EQUIPMENT AND WIRING for the sewage treatment plant, including switchboards, controls, wiring, conduit and accessories.

SECTION C—HEATING including boilers, radiators, piping, controls and accessories.

SECTION D — PLUMBING including water supply, sanitary and drain fixtures, piping, connections and appurtenances.

Each proposal must be accompanied by a certified check or bid bond from a reliable surety company authorized to do business in the State of New Jersey and satisfactory to the Authority in amount equal to ten percent of the proposal, and by an agreement from a qualified surety company binding the surety company to execute the required performance bond in the event the bidder is awarded the contract.

The Authority reserves the right to consider bids for thirty days after their receipt before awarding any contract and to accept any bid or to reject any or all of them.

EWING-LAWRENCE SEWERAGE AUTHORITY
By: Wilfred F. Predhome
Secretary

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3457) will be received by Bureau of Reclamation, Coulee Dam, Washington, until July 12, 1951, and then publicly opened for furnishing labor and materials and performing all work for painting of steel liners of 102-inch outlet-works conduits, elevations 1036 and 1136, Grand Coulee Dam, Coulee Dam Division, Columbia Basin Project. The work is situated in Grand Coulee Dam. The work requires the cleaning and painting of the interiors of the steel liners of the 40 outlet-works conduits in the spillway section of Grand Coulee Dam. The plate-steel liners will be given one coat of coal-tar primer and one finish coat of hot-applied, coal-tar enamel. The cast-steel sections will be painted with coal-tar paint. Time allowed for completion will be 690 days. For particulars, address Bureau of Reclamation, Coulee Dam, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3456) will be received by Bureau of Reclamation, Thermopolis, Wyoming, until July 17, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, structures, track, and communications line, relocation of Chicago and North Western Railway, Boysen Reservoir, Boysen Division, Boysen Unit, Wyoming, Missouri River Basin Project. The work is situated between Shoshoni and Riverton, Wyoming. Principal items are approximately: 140,000 cu. yds., excavation; furnishing and constructing 6.6 mi. of right-of-way fence; laying 3.3 track mi. of track; 6,200 cu. yds., of ballasting; constructing 3.4 mi. of communications lines; and other work. Time allowed for completion will be 300 days. For particulars, address Bureau of Reclamation, Hot Springs County Court House, Thermopolis, Wyoming; or Building 1-A, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3455) will be received by Bureau of Reclamation, Klamath Falls, Oregon, until July 12, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork and structures, N-Canal area—Second extension, Tule Lake sump and outlet structure for Pumping Plant No. 6, Modoc Unit, Tule Lake Division, Klamath Project. The work is situated south of Tulelake, California. Principal items are approximately: excavation, 185,000 cu. yds.; concrete in structures, 140 cu. yds.; laying various diameter corrugated-metal pipe, 1,080 lin. ft.; removing timber, 19.0 M.b.m.; furnishing and driving treated timber sheet piling, 3.1 M.b.m.; and other work. Time allowed for completion will be 180 days. For particulars, address Bureau of Reclamation, Klamath Falls, Oregon; or Building 1-A, Denver Federal Center, Denver, Colorado.

(Continued on page 84)

OFFICIAL PROPOSALS

Bids: July 11, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, July 11, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City. The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

LETTING OF JULY 11, 1951

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.				
Rensselaer	FARC51-43	Valley Falls-Johnsonville, S. H. 477 Johnsonville-Buskirk, Pts. 1 & 2, S. H. 8148-1644 Proj. No. F245(2); F173(2)	7.12	Asph. Conc. Ty. 1A, Opt.	$8,500 Plans $10	$146,000
Saratoga	FARC51-35	Schuylerville-Gansevoort, S. H. 1461 Proj. F391(6)	1.61	9" Cem. Conc Pavt. 22'-24' Wide	$14,000 Plans $10	$255,000
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee Street, Utica, N. Y.				
Herkimer	FARC51-41	Little Falls-Herkimer, S. H. 457 Proj. No. F352(12)	4.19	Asph. Conc. Ty. 1A, Opt.	$6,000 Plans $10	$111,000
Montgomery	FARC51-42	Little Falls-Fort Plain, S. H. 8217 Proj. No. F376(3)	3.26	Asph. Conc. Ty. 1A, Opt.	$4,500 Plans $10	$79,000
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., Weagh Lock Bldg., Syracuse, N. Y.				
Cortland	FARC51-13	Cincinnatus, S. H. 377 Proj. No. 8359(1)	0.16	Asph. Conc. Ty. 1A, Opt. 2 Span Alpha I-Beam, 150 ft. Total Alpha Royalty = $152.40	$8,000 Plans $10	$147,000
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Genesee	FARC51-37 FAC51-4	Corfu-Batavia, S. H. 8283 Batavia City: Pearl Street Proj. No. U377(11)	0.95	Asph. Conc. Ty. 2A	$15,000 Plans $15	$354,000
Genesee	FARC51-44	Batavia-Bergen, Pts. 1, 2, & 3, S. H. 8179-8089 Proj. No. F249(6); F96(9)	11.05	Asph. Conc. Ty. 1A, Opt.	$14,000 Plans $10	$241,000
		DISTRICT No. 7				
		R. F. Hall, Dist. Engr., 444 Van Duzee Street, Watertown, N. Y.				
Clinton	FARC51-38	Plattsburg-Mooers, Pt. 2, S. H. 259 Proj. No. F576(2)	3.95	Asph. Conc. Ty. 1A, Opt.	$5,000 Plans $10	$89,000
St. Lawrence	FARC51-39	Severn Cors-Colton, Pt. 2, S. H. 8199 Proj. No. F353(4)	4.42	Asph. Conc. Ty. 1A, Opt.	$8,000 Plans $10	$143,000
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick Street, Binghamton N. Y.				
Sullivan	FARC51-40	Minisink-Narrowsburg, S. H. 1927 Narrowsburg-Callicoon, Pts. 1 & 2, S. H. 8421-8422 Proj. No. F502(12)	4.60	Bit. Macadam, Type 1	$7,000 Plans $10	$121,000
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Road, Babylon, L. I., N. Y.				
Bronx	FA MDE51-1	Major Deegan Expressway (Contract No. 12) Proj. No. U1082(8)	3.50	Demolition of Bldgs. & Misc. Work	$28,000 Plans $10	$489,000
Suffolk	RC51-3	Amityville Village: Broadway, S. H. 1633 Amityville Village, S. H. 5300	0.68	Asph. Conc. Ty. 1A, Opt. = 0.47 Mi. Misc. Work = 0.21 Mi.	$8,000 Plans $10	$150,000
Suffolk	N. Sag. SP51-4	Sagtikos State Parkway (Contract No. 7)	2.01	9" Unreinf. Cem. Conc. Pavt. 2 at 25' Wide = 2.22 Mi. Misc. Work = 0.69 Mi.	$23,000 Plans $15	$415,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

SEARCHLIGHT SECTION

U. S. Government
(Continued from page 83)

Bids: July 27, 1951

NOTICE TO CONTRACTORS

UNITED STATES

DEPARTMENT OF THE INTERIOR

OFFICE OF TERRITORIES

WASHINGTON 25, D. C.

Sealed proposals will be received by the District Engineer for the Virgin Islands, Department of the Interior, Post Office Box 901, Charlotte Amalie, Virgin Islands, until 2:00 o'clock, P.M., Eastern Daylight Saving Time, Thursday, July 26, 1951, at which time and place the proposals will be publicly opened and read. Bids received after closing time of bid opening will be returned unopened.

The Government reserves the right to reject any and all proposals, to reject any bid not in proper form, to waive any informality in bids received, and to accept any bid or all bids in any way which the bidder qualifies and to accept bids in whole or in part unless the bidder qualifies his bid to specific limitation. A performance and payment bond will be required for the faithful performance of any contract awarded and for the payment of all persons performing labor and furnishing materials in connection therewith. Proposals not conforming with regulations and terms of employment of the proper Government may exercise the right to award contracts for the Saint Croix Water Supply Facilities and Water Quality Control Facilities in the best interests of the United States.

Plans and specifications and other proposed contract documents are open for public inspection at the Office of the District Engineer, United States Engineer's Survey Construction Office, Tarnos Virgin Islands, U. S. Postal and Associates, Consulting Engineers, 501 Building, Montgomery, Alabama, and Department of Public Works, Territory of the Virgin Islands, Charlotte Amalie, St. Thomas,

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
EMPLOYMENT WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.25 a line an insertion.

INFORMATION.
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

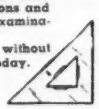
NEW ADVERTISEMENTS received by June 29th at the New York City Office, 330 W. 42 St., N. Y. 18, will appear in July 12th issue subject to space available.

STRUCTURAL ENGINEERING

A Course of Instruction by Mail

FOR FORTY YEARS our courses have helped thousands to better positions and to pass State Board Examinations.

Information sent without obligation. Write today.



WILSON ENGINEERING CORP.
College House Offices - Dept. E.
Harvard Sq. Cambridge, Mass.

(Continued from opposite page)

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven.

EMPLOYMENT AGENCY

WANTED—ENGINEERS, Designers, Draftsmen-Structural, Piping, M.E., C.E., E.E. and Industrial, also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

CONSTRUCTION EXECUTIVE, 50. Capable of managing an entire business. Thoroughly experienced with buildings, machinery installation, process piping and heavy construction projects. Actual superintendent and project manager background on large jobs. PW-9580, Engineering News-Record.

GENERAL SUPERINTENDENT: Experience includes, dirt moving, industrial buildings, bridges, concrete paving, sewers, tunnels, dams, capable of taking complete charge of large projects. Can be available about June 15. PW-9933, Engineering News-Record.

DIVER—C. F. Logan. Construction and salvage; subaqueous reports; qualified to make underwater surveys for engineers. Capable of organizing equipment and personnel for special underwater jobs. 118 E. Bay St., Jacksonville, Florida. Phone 6-3473.

SECRETARY—5 years with general contractor, 20 months with Corps of Engineers. Available within 30 days. Good references. PW-1068, Engineering News-Record.

M.I.T. graduate, age 36, desires executive position. Has excellent personality and experience in management in engineering or its allied fields. Presently employed in the aircraft industry. Prefers the east. Available immediately. PW-1031, Engineering News-Record.

STRUCTURAL DESIGNER, age 27, Registered PE, MSCE, 1 yr. teaching experience, 3 yrs. structural design of steel, timber and reinforced concrete. PW-1091, Engineering News-Record.

CHIEF ESTIMATOR—General Superintendent-Project Manager: Available to General Contractor with right proposition. Currently associated with large General Contractor but desirous of change. Salary in $15,000.00 per annum bracket. PW-1095, Engineering News-Record.

ENGINEER—B.A. degree. Single. 3 years experience in supervision of aircraft maintenance and heavy equipment. 5 years experience in hydraulic engineering. Fluent Italian. Desire foreign position in engineering sales field. PW-1098, Engineering News-Record.

SUPERINTENDENT OR General Foreman 23 years, experience concrete field Batch, crushing, block, and precast. Placing and handling heavy construction. PW-1109, Engineering News-Record.

DRAFTSMEN • DESIGNERS • ENGINEERS

needed for essential work on the national Atomic Energy Program at

THE LOS ALAMOS SCIENTIFIC LABORATORY

Los Alamos, New Mexico

operated by the

UNIVERSITY OF CALIFORNIA

for the

Atomic Energy Commission

In The Mountains of Northern New Mexico

- 2 DAYS CUMULATIVE PAID VACATION PER MONTH
- 1½ DAYS CUMULATIVE PAID SICK LEAVE PER MONTH
- HOUSING AVAILABLE AT REASONABLE RENTAL
- MOVING EXPENSES PAID

Write to

E. W. Doty, Los Alamos Scientific Laboratory,

Los Alamos, New Mexico

POSITIONS WANTED

CIVIL ENGINEER, B.E., age 26, married, 1 yr. responsible construction experience in structures, earth work, with state hwy. U. S. or foreign. PW-1126, Engineering News-Record.

EQUIPMENT SUPT., Mechanical Operating engineer, over 25 years experience with erection, repair, maintenance heavy industrial, power plants, pumping stations, marine equipment. P. Cornwell, 6824 Colonial Rd., Brooklyn 20, N. Y. Terrace 6-6236.

ENGR-EXPD Constr., Maint., and Sales leaving for Argentina, S. A., desires assoc. with American Firm. Reply PW-1124, Engineering News-Record.

CONSTRUCTION EXECUTIVE, age 39, B.S. in C.E., 17 years in heavy and industrial construction management and operation foreign and U. S. positions superintendent to general manager. Know administration and job operations. Interested only in top position with reliable concern. Available July 15th. Write PW-1160, Engineering News-Record.

POSITIONS WANTED

LABOR RELATIONS Manager, 39, married. 10 years experience as union business agent, East. PW-1164, Engineering News-Record.

C.E. GRADUATE wants position in N.E. or north central U. S. Experience: 8 years State Highway Department as Inspector & Instrumentman on structures, 3 years teaching Math., Surveying, Mechanics courses and Drawing at college, 8 years as office Engineer, Office Manager, Estimator and part owner for contractor on heavy construction. Will consider only permanent position. PW-1155, Engineering News-Record.

SELLING OPPORTUNITY WANTED

INDUSTRIALIST, WELL introduced with the heavy industries in France desires the agency of an important American paint firm. Write to Richard Lampert, 1, Rue de Bouteiller, Metz, Moselle, France.

DESIGNERS

We pay among the highest rates in the industry
Our employees share annually in company profits

Must be willing to relocate in Cleveland

Permanent employment

Our continuous expansion and growth offers many fine future opportunities.

We need Designers experienced in Blast Furnace, Steel Mill or Oil Refinery Design.

Men with specific experience, training and background in the following classifications:

STRUCTURAL DESIGNERS
CONCRETE DESIGNERS
ELECTRICAL DESIGNERS
ENGINEERING DESIGNERS
CHECKERS

Our working conditions are the best; our offices are air-conditioned and well-lighted.

We want men who have a genuine desire to develop and advance.

Write to

ARTHUR G. McKEE & COMPANY

2300 Chester Avenue — Cleveland 1, Ohio

EXPERIENCED BOOKKEEPER

Man or Woman

Must have complete knowledge of the building industry. Must possess initiative, reliability and ability to take complete charge of all bookkeeping, invoicing, and record posting. This individual will hire the necessary personnel to assist with this work, but responsibility for correctness of work will be vested in the individual in charge.

Compensation will be commensurate with the ability of the individual, and if this individual proves himself or herself to be an asset to our company, an arrangement will be made whereby the individual will participate in the profits of the company. We have a very attractive proposition for anyone who is willing to work and reorganize this department, which is sorely lacking in initiative.

WALTER W. OEFLEIN, INC.
5345 N. Hopkins St., Milwaukee 9, Wisc.

WANTED

STRUCTURAL DESIGNER

By a large American oil company in South America.

Should have college degree and approximately 5 years' experience in drafting and design of structures of steel, timber, and reinforced concrete.

Write giving age, education, marital status, and complete details of past experience. Your reply will be held in strict confidence.

BOX 308-X
RADIO CITY STATION
NEW YORK 19, NEW YORK

ENGINEERS

ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical	Power, lighting layouts and electrical controls.
Mechanical	Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.
Structural	Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders

The Ferguson Bldg. 1783 E. 11th St., Cleveland 14, Ohio
19 Rector Street, New York 6, N. Y.

CONSTRUCTION SUPERINTENDENT

Wanted Construction Superintendent to supervise contractors on construction of hydro-electric project in South America. Must have working knowledge of Spanish and experience in transmission lines, substation, power plant, steel penstock, and rock tunnel work. Three years work. Give experience record, date available, family status and minimum salary expected.

P-1122, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

PLANT & MAINTENANCE ENGINEER

Experienced, for work in Continental United States. Some traveling necessary. State salary expected, age, experience, and date available for work. Write

Box ENR 294,
221 W. 41 St., New York 18, N. Y.

WANTED

Experienced General Foremen

. . . . for high type sub-base and macadam penetration pavement on New Jersey Turnpike. Must be producer. Wages comparable to ability. Contact:

S. J. GROVES & SONS CO.
Swedsboro, New Jersey
for personal interview.

Also

. . . other **Construction Foremen** with Highway experience needed.

WANTED

ENGINEERS

. . . to train as . . .

Industrial Consultants in Fire Protection Engineering

full pay to start—complete training field engineering with top U. S. and Canadian industry—usual pension and other benefits. Permanent.

Write complete qualifications to

P-9609, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

BRIDGE SUP'T WANTED

Able to take charge of section of large contract, concrete & steel sheet piling, etc., in Trenton, N. J. Must have had successful experience in similar work. State age, references, experience, salary, when available.

P-9091, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

Wanted

CONTRACTOR'S ESTIMATOR & MANAGER

Experienced in large & small sewers, disposal plants, piling, bridges, and road work. Opportunity to share profit for the right man.

UNITED FOUNDATION CORPORATION
680 Lexington Road. Union, N. J.
Phone Unionville 2-4257

ENGINEERS

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6—80,000 bbl. 117' x 41'-10"
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1 45-ton TRUCK CRANE
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World's Largest Truck Crane

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1—315 IR Compressor (Rebuilt)

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Cat. D-8 Tractor, dozer, New Nov. 50.
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All Equipped with Baker Hydraulic Straight Blade Bulldozers. In good working condition

HD7's $4750 each

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Also 3 C-11 Tournapulls

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Machines and Tires
in good condition

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12" I	31.8#	40'/48'
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8" x 36#	to	48#	30'/40'
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4—2 c.y. #463D Garbro Concrete Buckets.
2—Model 40 1-R Compressors, 6x6/5/5, 284 cfm each displacement, 50 HP 3 ph 220/440 V motors.
Vertical turbine pumps for cofferdam or water supply.
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All in good working condition and available promptly from our work at Sault Ste. Marie, Mich.

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One model 665B 1½ yards P and H backhoe equipped with D13000 diesel engine. Used six months. Like new. Located in western Pennsylvania.

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FS-1058, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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3—600 KW 750 KVA Diesel Electric Generator Sets (2—Ingersoll-Rand, and 1—General Motors). For further information address

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1 Fire Truck
Seagrave 500 Gal. Pumper
Good Condition $600.00
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LS Carryall Scrapers.
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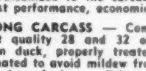

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NEW PRODUCTS

Hydraulically controlled scraper for diesel tractor

Two-wheel hydraulically controlled scraper is designed as matched equipment for the John Deere R tractors. The Ateco Model H-62 is a 6-yd scraper and will work at speeds to 12 mph. A special hitch under the tractor rear axle transfers part of the scraper, complete with hitch assembly, wheels for greater pulling power. It is self-loading and self-spreading. Features include: Low center of gravity, high road clearance, independent front apron, and a rear apron that wipes scraper bowl sides clean as load is dumped. Cutting-edge width is 7 ft. Turning radius of tractor and scraper is 15 ft 6 in. Weight of scraper complete with hitch assembly, is 7,670 lb. Scraper can be had with single or dual tires. Front-wheel assembly can be added for four-wheel operation.—American Tractor Equipment Corp., 9131 San Leandro Blvd., Oakland 3, Calif.

Self-contained stud driver

Cartridge-powered tool can set five or more studs a minute in concrete, steel, wood, brick, asbestos siding and roofing, and other structural materials. Power is supplied by a 32-cal Long rim fire blank cartridge. Colored plastic heel cap or cup indicates powder load, varying in accordance with the job intended. Studs vary in length from ⅜ to 2¼ in. long, in 20 different sizes and four general types: Standard (like a nail head); break-off head, for semi-flush mounting; externally threaded; and internally threaded. The Model 450 driver is equipped with a number of safety devices.—Remington Arms Co., Inc., Bridgeport 2, Conn.

High-head pumps

Two-stage Type DMD pumps are made in sizes from 2 to 10-in. discharge with capacities to 4,000 gpm and heads to 750 ft. Features include a horizontally split casing with interconnecting passage between the two opposed impellers, and non-overloading, balanced impellers. — Economy Pumps, Inc., Div. of Hamilton-Thomas Corp., Hamilton, Ohio.

Plug-in bus ducts

New bus ducts are available in four standardized types for a variety of industrial power distribution systems. Types included are plug-in duct for branch runs providing power take-off outlets every 12 in.; weatherproof feeder duct for outside runs; low-impedance duct of long feeder runs; and weatherproof low-impedance duct. Alignment of ducts is by cantilever clamp hangers. — Westinghouse Electric Corp., Box 2099, Pittsburgh, Pa.

Improved bronze bearings

Line of bearings and bushings is available in sizes up to 24 in. dia., in plain, flanged, split, or combination types. Finishes range from accurate machine finish to a semi-finish for rough work. Cast from rigidly controlled bronze bearing metals, they incorporate special lubrication designs to meet individual requirements.—Bronze Bearings, Inc., 828 North Ave., E. Cranford, N. Y.

Hydraulic extensible tower

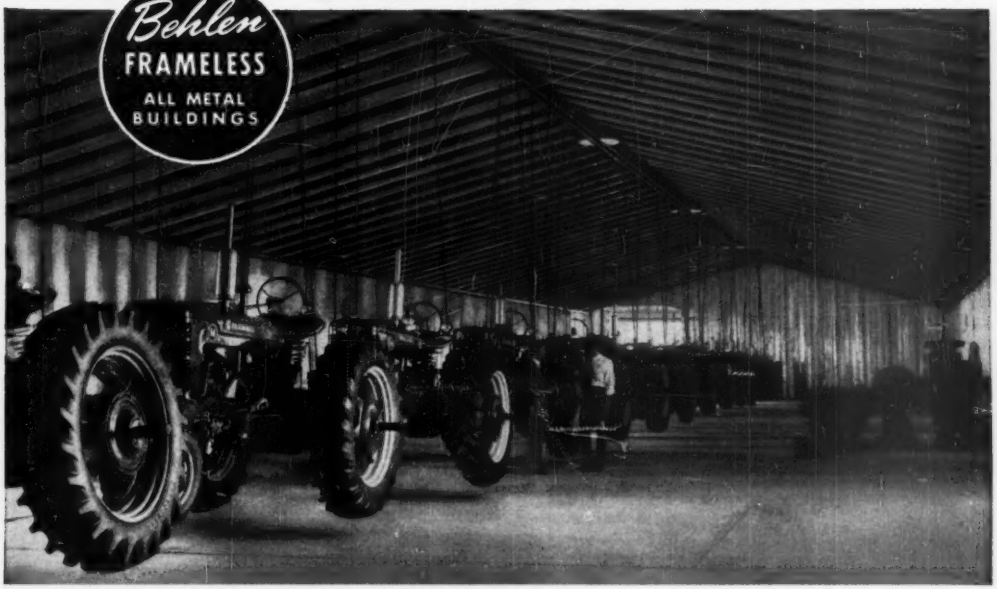
Truck-mounted hydraulically operated extensible tower features full control on the operator's platform at the point of the boom. The Model 51 Sky Hook has hydraulically actuated outriggers to provide a safe base on the ground. Working range is 51 ft 6 in. The unit moves in a 280-deg arc around the turntable base. Jointed boom folds over the truck cab for traveling. Over-all width is 6 ft 8 in. — Mobile Towers, Inc., Fort Wayne, Ind.

Concrete hardener

Flintcrust compound is said to provide concrete with a case-hardened surface impervious to oil, grease, and other destructive chemicals. Features

(*Continued on page 101*)

Announcing FRAMELESS (Monocoque) Construction



In a Test of a Large Behlen Frameless (monocoque) Building, 14 tractors, Weighing 32 Tons, Were Suspended from the Roof Ridge. No sag. Photograph above. Could Easily Have Held Up Much More Weight.

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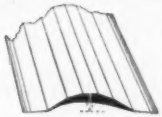
[Patent Pending]



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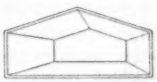

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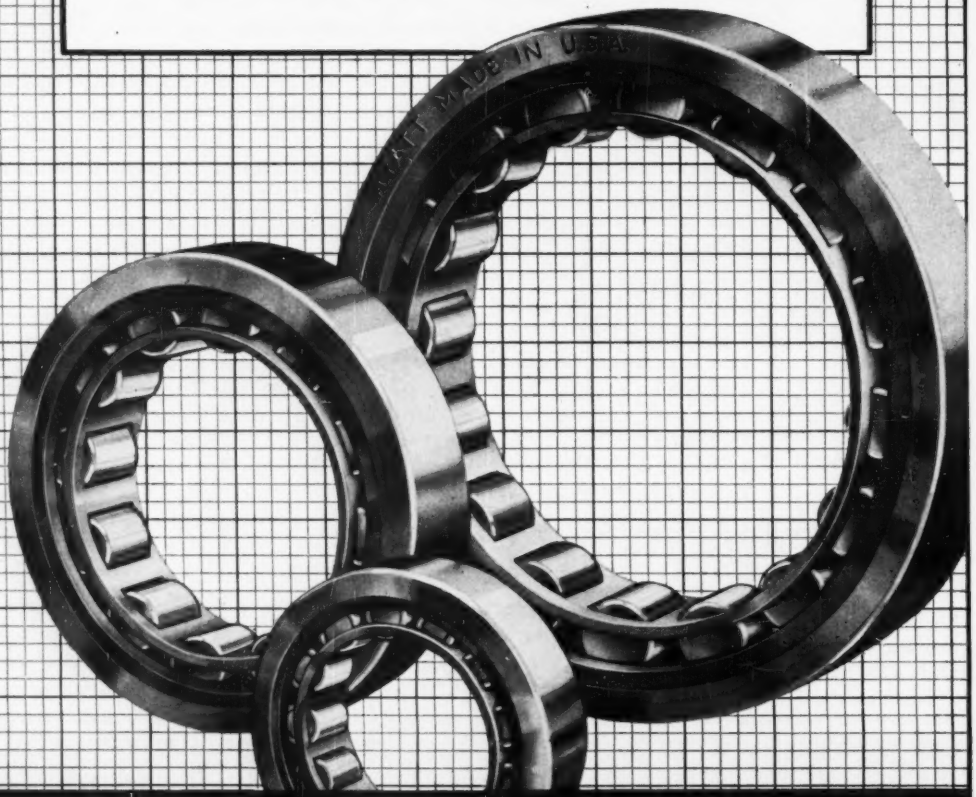

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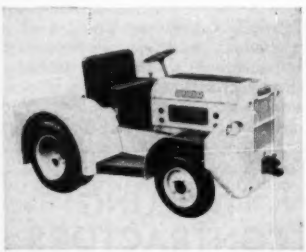
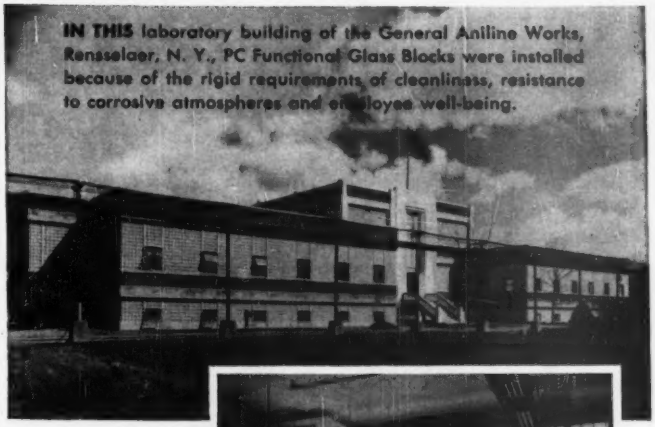


Torque converter Shop Mule

Six-ton-drawbar-pull tractor with torque converter can be diesel or gasoline powered. The HA-120 Shop Mule has a single-stage closed-circuit-type torque converter. Features include 4-wheel hydraulic brakes, heavy-duty transmission with four forward and one reverse speed, 17-gal Protecto-seal fuel tank, adjustable seat, and dual pneumatic-drive tires.—THE BUDA CO., HARVEY, ILL.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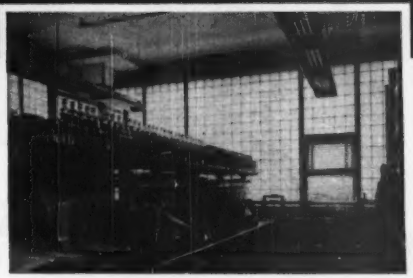

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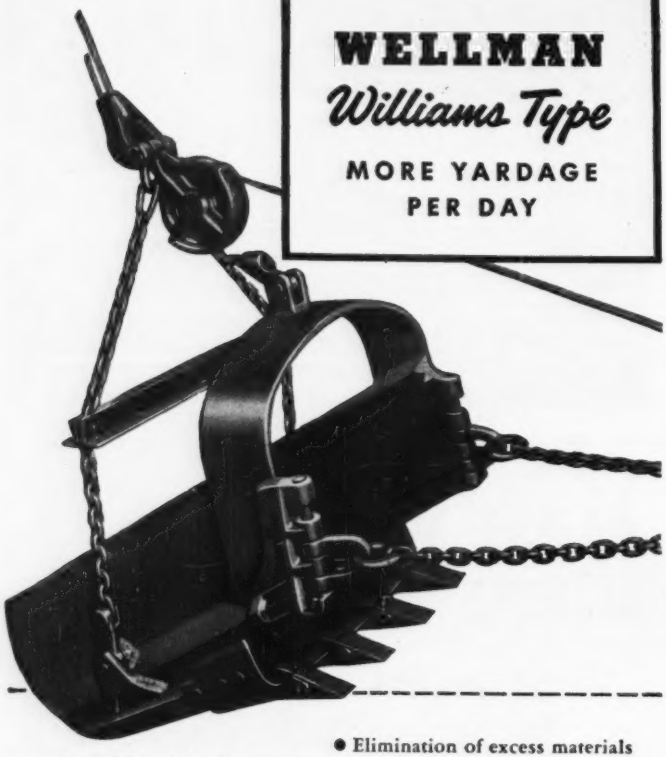

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Fan-cooled motors—Bulletin describes types of construction and ratings of fan-cooled motors with tube-type air-to-air heat exchangers. These are available in squirrel-cage, wound-rotor, and synchronous types for horizontal and vertical installations. Features listed include capsule-type bearings, protected air intakes, and pipe-plug protected tapped holes for checking air gap with feeler gages.—ALLIS CHALMERS MFG. CO., 1018 S. 70th ST., MILWAUKEE, WIS.

Trucks in construction—Part played in construction by heavy-duty trucks and highway tractors is described by pictures and text in this 6-p folder. The folder cites advantages of these units in hauling stone, ready-mixed concrete, brick, steel, lumber, and machinery. Many different types of units are illustrated listing the various body styles and chassis available for a wide range of operations.—THE AUTOCAR CO., ARDMORE, PA.

Safety-step ladders—Folder describes all-steel mobile ladders available in models with from 1 to 8 steps for average work levels up to 11 ft 6 in. above the floor. It features a new 4-step Stockart ladder with adjustable push-bar hangers. A special feature of the ladders is that the spring-mounted ball-bearing castors automatically retract when weight is put on the ladder.—BALLYMORE CO., WAYNE, PA.

Lightweight conveyor—Features of a lightweight, multi-purpose conveyor are described in this 4-p bulletin. The bulletin lists 11 features of construction for these conveyors. The conveyors are available in 16 or 20-ft

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lengths. Dimensions and specifications are included, as a list of recommended applications.—THE BELT CORP., ORIENT, OHIO.

Phoscote process—Eight-page booklet completely describes the Phoscote process of pickling and painting steel plates, angles, channels, and other shapes produced by rolling. It provides a clean, dry surface with a coating of iron phosphate that improves the bond between the prime coat of paint and the steel. The booklet contains photographs and drawings showing various operations during Phoscote processing. It also contains photographs of completed structures built of plates and shapes treated in this manner.—CHICAGO BRIDGE & IRON CO., 332 S. MICHIGAN AVE., CHICAGO 4, ILL.

Lightweight aggregate — Brochure (8 pp) describes use of Permalite aggregates in concrete as a lightweight insulating roof fill. Various features of Permalite concrete are described. Mix designs and other technical data are included, as is a typical specification for roof fill.—GREAT LAKES CARBON CORP., BUILDING PRODUCT SALES, 18 E. 48TH ST., NEW YORK 17, N. Y.

Diesel crawler tractors—Detailed specifications on the TD-9 diesel crawler tractor are included in this 2-color catalog. Featured is a description of how the TD-9 develops and applies its 40.5 drawbar horsepower. Several varied job-application scenes appear in Catalog CR-313-A along with information on construction and operating features.—INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

Reynolds aluminum—Birth and growth of the Reynolds Metals Co. is outlined in this 48-p book. The book features a description of the production of aluminum from bauxite, the characteristics of aluminum, the many forms in which it is made, and its various applications. More than 250 illustrations are used. Specialized aluminum products (powders, pastes, and chemical aluminas) are described.—REYNOLDS METALS CO., 2500 S. 3RD ST., LOUISVILLE, KY.

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The Incodel Plan—A progress report

It has been 10 months since consulting engineers for the Interstate Commission on the Delaware River Basin (Incodel) submitted their final report on cooperative, 4-state utilization of the interstate stream, recommending creation of an authority for joint action (ENR Sept. 21, p 25).

Establishment of such an authority would require an interstate compact signed initially by New York, New Jersey, Pennsylvania and approved by Congress. Delaware might join later.

A compact to give effect to the Incodel proposals was drawn up and submitted to the legislatures of the three states. What has happened?

• **An involved picture**—New York State's legislature completed its 1951 session without taking action on the proposed compact. This failure to act may be interpreted, however, as a desire to postpone action rather than to oppose the plan. It is felt in some quarters that present indecision over future New York City water sources, pending report by a group of consultants engaged last year (ENR May 25, 1950 p 27) may explain the state's apparent reticence on the Incodel plan.

Actually, New York State tends to favor the plan, and what has transpired since the legislatures convened is something like this:

In effect, New York agreed that if New Jersey and Pennsylvania approved the compact, it would go along, calling a special legislative session to act on it, if necessary.

New Jersey took more positive action. Its legislature has approved the compact, recognizing the critical water situation in that state. Its Governor Driscoll was due to sign it into law as this story went to press.

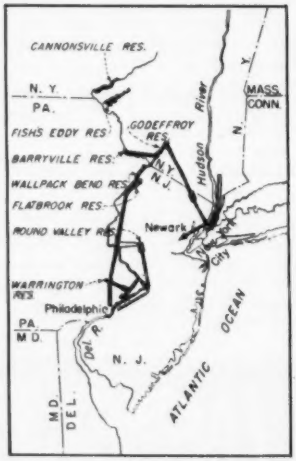
In Pennsylvania, however, where the water-supply situation is not acute, Governor John S. Fine has been urged to give the Incodel plan more study. Pennsylvania wants an increase in the low flow of the Delaware River, but as apportionment of the cost of reservoirs to store flood waters for that purpose will be difficult, the state wants to be sure that the Incodel plan is the best solution from the viewpoint of Pennsylvania and its interests.

• **Wants more facts**—Consequently, Gov. Fine has appointed a committee to study the matter, rather than recommend that his Commonwealth participate. This decision appears to preclude any action by Pennsylvania this year—and its legislature meets next in 1953.

In the face of a voluminous engineering report by Incodel consultants (Malcolm Pirnie Engineers, New York, and Albright & Friel, Inc., Philadelphia) Governor Fine has stated:

"It is important that we get the facts. These can be ascertained only after careful study." His nine-man study group is under the chairship of A. M. Greenfield, reportedly a proponent of an independent survey for Pennsylvania.

• **Speculation**—New York City and metropolitan Northern New Jersey are the critical areas involved. New York, with the first reservoir of its present two-stage Delaware development now filling and the other two to be ready in 1952 and 1954, is even now being warned of a possible shortage of water this summer. And after completion of its Stage 2, a proposed third stage—another 323 mgd—will be required to meet the estimated demand of 1960.



TO BE OR NOT TO BE—and if not, then what? For details of Incodel plan see ENR Feb. 2, 1950, p. 25.

When in 1931 the Supreme Court of the United States limited New York City to a 440-mgd diversion from the Delaware, it gave permission for a future petition for more water. The city's corporation counsel is reported to have been working on just such a petition so that Stage 3 work, another reservoir and 44 miles of tunnel, can proceed. Irving V. A. Huie, president of New York's Board of Water Supply proposes that this facility be started now and turned over to the interstate authority if it is established before 1960.

Metropolitan New Jersey, too, is short on water—perhaps more critically so than New York. Demand approaches dependable yield and there's need of a major new supply right now—although none is planned.

Pennsylvania, notably the Philadelphia area, has all the water it needs but can use better quality raw water. The area's chief immediate benefit from Incodel's plan would be increased dry weather flow—a factor important in pollution control, especially in view of present industrial expansion along the lower Delaware.

If Pennsylvania's delay should lead to action on some plan other than the full scheme as now proposed, there are several possibilities. Here are a few:

(1) New York may get Supreme Court approval of further diversion and proceed independently on its Stage 3.

(2) Metropolitan New Jersey may go after piecemeal supplies as needed. Or it may follow New York's lead and apply to the Supreme Court for permission to divert water from the Delaware—a move that might meet resistance from Pennsylvania.

(3) New York and New Jersey conceivably could form a bi-state compact, apply to the Supreme Court for authority to divert additional water from the Delaware into a northern New Jersey reservoir and create a supply to satisfy both for some time to come. Provision might be made for Pennsylvania to join in at a later date with assurance that its rights will be protected.

(4) The federal government might possibly get into the picture.

Any one of these could happen if the Pennsylvania's study group does not act soon or if it should recommend against participation in the compact as now drawn.

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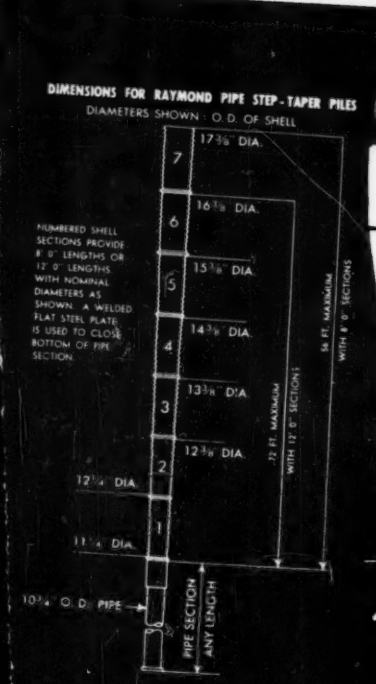

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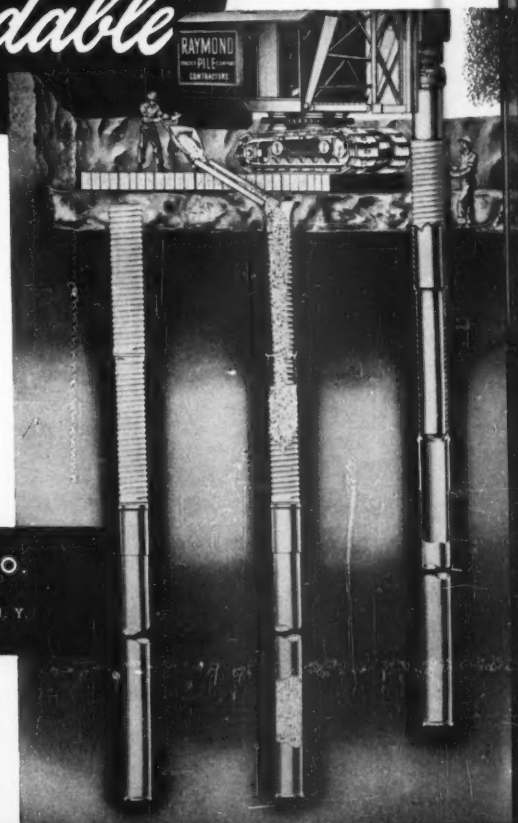

At the right, the pipe step-taper pile is being driven with the rigid steel mandrel. In the center the shell and pipe are being filled with concrete after having been driven to satisfactory resistance and inspected. At the left is a completed pipe step-taper pile.

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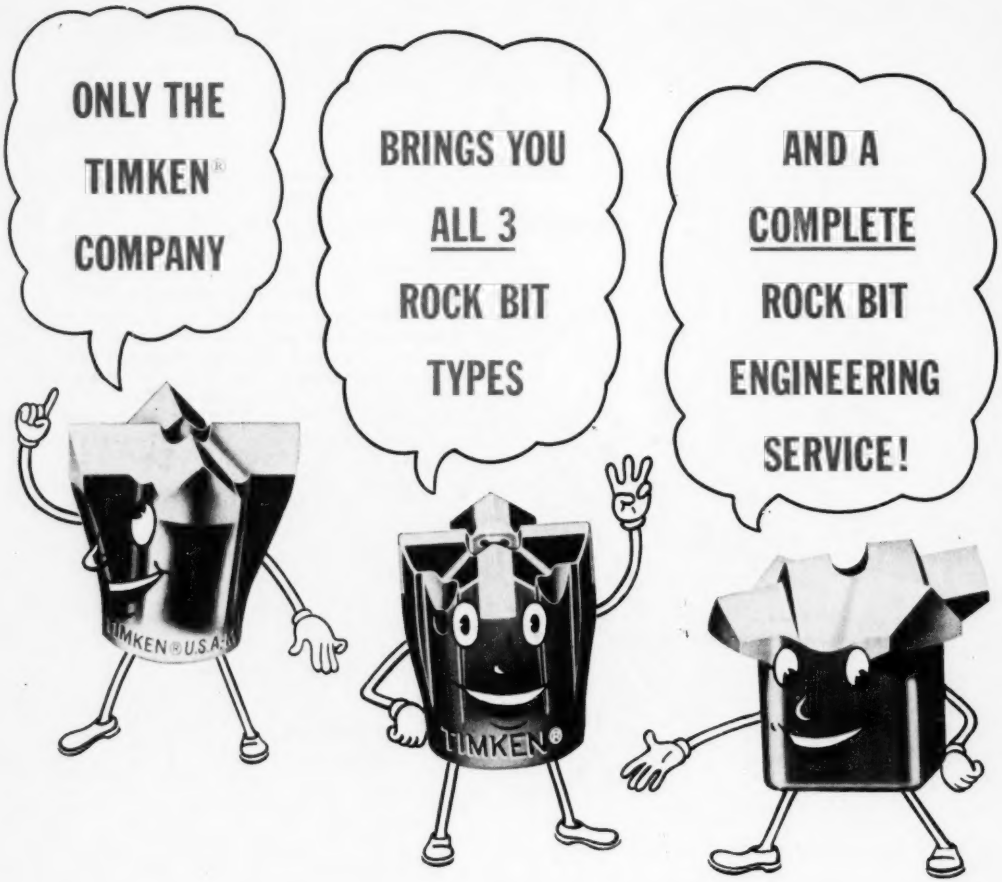

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